Report of Limited Phase II Environmental Site Assessment Former Harriet Tubman Homes Site Sholar Ave Chattanooga, Tennessee S&ME Project No. 4181-18-046

PREPARED FOR:

City of Chattanooga c/o Barge Design Solutions
633 Chestnut Street, Suite 800
Chattanooga, Tennessee 37450

PREPARED BY:

S&ME, Inc.
4291 Highway 58
Chattanooga, TN 37416

December 4, 2018

December 4, 2018

City of Chattanooga
c/o Barge Design Solutions
633 Chestnut Street, Suite 800
Chattanooga, TN 37450

Attention: Mr. Russell Moorehead, PE

Reference: **Report of Limited Phase II Environmental Site Assessment**
Former Harriet Tubman Homes Site
Sholar Avenue
Chattanooga, Tennessee
S&ME Project No. 4181-18-046

Dear Mr. Moorehead:

S&ME, Inc. (S&ME) is pleased to submit this report of Limited Phase II Environmental Site Assessment (ESA) for the subject property located on Sholar Avenue, in Chattanooga, Hamilton County, Tennessee. This report discusses background information, assessment purpose and scope of services, execution of work, conclusions, and recommendations for the subject property.

This report is intended for the use of the City of Chattanooga c/o Barge Design Solutions. These services were conducted in general accordance with the scope service outlined in S&ME Proposal No. 41-1800380 CO-1, dated November 6, 2018, authorized by Mr. Russell Moorehead with Barge Design Solutions, via signed agreement on November 2, 2018. The services associated with the Limited Phase II ESA were conducted as an increase of scope to services previously authorized under S&ME proposal 41-1800380, between S&ME and Barge Design Solutions, dated June 29, 2018, and the terms and conditions established therein.

Mr. Moorehead, we appreciate your selection of S&ME for this project and look forward to assisting you further on future projects. If you have any questions, please do not hesitate to contact either of the undersigned.

Sincerely,

S&ME, Inc.

Paul Hubbard
Environmental Staff Professional

Johanna Heywood, PE, PG
Senior Project Manager

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♦ EXECUTIVE SUMMARY

The City of Chattanooga and Barge Design Solutions authorized S&ME to perform a Limited Phase II Environmental Site Assessment (ESA) of the former Harriet Tubman Homes, located on Sholar Avenue, in Chattanooga, Hamilton County, Tennessee (i.e. "subject property"). S&ME understands these services were requested in conjunction with criteria established under the Select Tennessee requirements, as well as a potential development and financial transaction related to the subject property. The subject property is situated off of Sholar Avenue and consists of nine parcels totaling approximately 42 acres. The subject property currently is grassed, vacant land with remnants of previous site improvements (base stone, paved roads and gravel access drives). Mature trees are located in the northern region of the subject property and along the perimeter. The subject property is bound to the north by undeveloped, wooded land and the former Barber Elementary School, to the east by Roanoke Avenue; to the south by Southern Street; and to the west by Norfolk Southern's Debutts Railyard. Land use on the immediately surrounding properties consists of light industry to the north and west, and is mixed use (though primarily residential) to the south and east.

S&ME's Phase I ESA, dated November 6, 2018, identified no onsite *recognized environmental condition* and one offsite *recognized environmental condition* associated with historical operations of the Debutts Yard/ Norfolk Southern Rail Yard dating back to at least 1950. S&ME concluded that additional information, including subsurface exploration, was warranted to better understand the potential presence of petroleum and/or hazardous substances associated with or attributed to the identified offsite *recognized environmental condition*.

Based on the prior assessment findings and recommendations, S&ME proposed and was authorized to conduct a Limited Phase II ESA, specific to the client's objectives. The Limited Phase II ESA included the installation of four soil borings, each converted to a temporary monitoring well, and the collection and analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and RCRA metals in groundwater and VOCs in soil gas.

S&ME's conclusions, based on the results of field activities and laboratory analytical results documented in this Limited Phase II ESA report and in consideration of our understanding of your objectives, are summarized as follows:

This assessment has identified the presence of petroleum-related and/or hazardous substances in groundwater and soil gas.

Groundwater

No detectable concentrations of VOCs or PAHs were identified in the four groundwater samples collected. In the case of RCRA metals, two compounds (barium and lead) were identified in excess of the laboratory detection limit, but below the corresponding comparison criteria (RSLtap and/or MCL).

Soil Gas

Detectable concentrations of up to fourteen compounds were identified in the two soil gas samples collected. The detected compounds were not identified at concentrations in excess of corresponding comparison criteria (RSLind adjusted for attenuation).

Based on the assessment results presented herein, and in consideration of our understanding of the City of Chattanooga c/o Barge Design Solutions communicated objectives, additional assessment does not appear warranted.

This summary is for convenience only and should not be relied upon without first reading the full contents of this report, including the appendix materials.

1.0 Introduction

1.1 Purpose

S&ME understands these activities were requested in connection with a prospective real estate transaction involving the subject property. The purpose of this Limited Phase II ESA was to reduce uncertainty regarding the potential presence of petroleum products or hazardous substances which may be attributable to the identified *recognized environmental conditions* in connection with the subject property. Delineating vertical and/or horizontal extent of any contamination was beyond the scope of this project. This assessment was intended to assist the User in satisfying the applicable standard of "all appropriate inquiry" by providing information that may help to support one of the threshold criteria for satisfying one or more defenses to Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) landowner liability protections (LLPs).

1.2 Client Objectives

S&ME further understands that this assessment was requested in conjunction with criteria established under the Select Tennessee requirements, as well as a potential development and financial transaction related to the subject property. The objective of the Limited Phase II ESA is to reduce uncertainty regarding the potential for impact to the subject property resulting from *recognized environmental conditions* identified in the Phase I ESA.

1.3 Special Terms and Conditions

The services completed under this assessment were conducted in general accordance with the scope service outlined in S&ME Proposal No. 41-1800380 CO-1, dated November 6, 2018, which was conducted as an increase in scope, to services previously authorized under S&ME Proposal 41-1800380 between S&ME and Barge Design Solutions, dated June 29, 2018, and the terms and conditions established therein.

1.4 Limitations and Exceptions of Assessment

This report and the assessment activities on which it is based were intended for the purposes set out in Section 1.1 and are specific to the objectives and approach presented in Sections 1.2 and 1.3. This scope of services does not necessarily include the level of specificity required of technical standards that govern full characterization of the environmental conditions of the subject property. Moreover, the assessment objectives were specific to those identified by The City of Chattanooga c/o Barge Design Solutions and may not be appropriate to the needs or business objectives of others. Furthermore, this scope did not include (and was not intended to include) the level of detail and assessment effort (and corresponding cost) necessary to meet the specific requirements of environmental regulatory authorities that may have jurisdiction over the subject property.

2.0 Background

S&ME is familiar with the property based on the findings of our Report of Phase I Environmental Site Assessment, dated November 5, 2018. The subject property consists of nine parcels totaling

approximately 42 acres located on Sholar Avenue in Chattanooga, Hamilton County, Tennessee. The subject property currently is grassed, vacant land with remnants of previous site improvements (base stone, paved roads, and gravel access drives). Mature trees are located in the northern region of the subject property and along the perimeter. The subject property is accessible from the east via Roanoke Avenue and from the southwest via Sholar Avenue. The subject property is bound to the north by undeveloped, wooded land and the former Mary Ann Garber Elementary School, to the east by Roanoke Avenue; to the south by Southern Street; and to the west by Norfolk Southern' s Debutts Railyard. Land use on the immediately surrounding properties consists of light industry to the north and west, and is mixed (though primarily residential) to the south and east.

S&ME's Phase I ESA, dated November 6, 2018, identified one offsite *recognized environmental condition* associated with current and historical operations of the west adjoining railyard (Debutts Yard/ Norfolk Southern Rail Yard) dating back to at least 1950. S&ME concluded that additional information, including subsurface exploration, was warranted to better understand the potential presence of petroleum and/or hazardous substances associated with or attributed to the identified offsite recognized environmental condition.

S&ME recommended obtaining additional information, including subsurface exploration, to reduce uncertainty regarding the potential presence of petroleum or hazardous substances associated with or attributable to the identified *recognized environmental condition.* The additional assessment also would be helpful to better understand the identified vapor encroachment condition.

3.0 Limited Phase II Activities

3.1 Scope of Assessment

Based on the identified conditions and in consideration of the Client's stated objectives, S&ME proposed to assess the potential for impact as identified in Section 2.1 by subsurface exploration and sampling of environmental media including soil (if groundwater was not encountered), groundwater, and soil gas. The on-site assessment is intended to identify the presence and general magnitude of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and RCRA metals at concentrations in excess of Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for commercial/industrial land use in the case of soil (if sampled), and soil gas and EPA RSLs for tap water or the Maximum Contaminant Limit (MCL) in water, where established.

The scope of work for this project included:

- Written Health and Safety Plan/Public Utility Clearance;
- Installation of four (4) soil borings;
- Conversion of the 4 soil borings to temporary monitoring wells;
- Installation and sample collection from two (2) soil gas sample location points;
- Collection and laboratory analysis of selected soil (in the absence of measureable groundwater), groundwater, and soil gas samples, as presented in Table 3-1 in Section 3.1.2; and
- Preparation of a written report documenting the field activities, results of laboratory analysis, and recommendations.

3.1.1 Health and Safety and Utilities

Prior to the field activities reported herein, S&ME prepared a project specific Health and Safety Plan. That plan contains specific standard work practices and precautions intended to prevent or minimize exposures to S&ME's personnel and to the general public. In accordance with that plan, S&ME exercised caution to prevent damage to or resulting from encountering subsurface structures, utilities, or other obstacles that were identified to us.

We contacted local public utility providers through a standard state-required one-call system and advised onsite contact personnel of our planned boring locations for their approval prior to the subsurface exploration.

3.1.2 Conceptual Site Model and Sampling Plan

S&ME proposed a sampling plan based on the conceptual site model summarized below in order to identify the detectable presence of suspected contaminants in environmental media, if present.

Neither historical nor current land use at the subject property were identified as environmental concerns. Current and historical land use associated with operations at the west adjoining rail yard were identified as an environmental concern. The subject property and the west adjoining property were anticipated to be underlain by shallow groundwater. Therefore, a potential release of petroleum and hazardous substances encountered onsite was considered most likely to have migrated through (and be detectable in) shallow groundwater. In the case of petroleum hydrocarbons, the potential presence of petroleum and/or hazardous substances in soil resulting from impacted groundwater at concentrations high enough to exceed EPA RSLs or to pose an unacceptable exposure to future occupants was expected to be concentrated in soil/groundwater interface. Based on the physical and chemical characteristics of chlorinated or halogenated solvent-based compounds (commonly used in degreasing operations associated with engine repair), which have a specific gravity greater than water, contamination in groundwater resulting from operations using solvents typically is found near the soil/rock (or other confining layer) interface. For this reason, where use of chlorinated solvents is a concern, reasonable effort is made to install temporary monitoring wells to the soil/rock interface in an effort to intercept the likely location of solvent. Based on review of the United Stated Geological Survey 7.5-Minute Series Topographic Quadrangle Map of the Chattanooga, Tennessee Quadrangle, dated 1976,

It appeared that the groundwater flow direction in the uppermost water-bearing unit of the subject property is generally to the west, with localized flow to the north/northwest, toward Tannery Branch and to the southwest toward the drainage feature.

Groundwater in the Chattanooga area is influenced by the Tennessee River which is managed by the Tennessee Valley Authority (TVA). TVA controls flow volume and river levels through various dams along the River. Given the proximity to the river and subsequent effects of river elevation as they relate to primary tributaries (i.e. Citico Creek and Tannery Branch) and the tendency for those tributaries to experience flooding events, groundwater flow at the site and surrounding area may vary from expected given topography.

The potential presence of contaminants in groundwater or soil gas originating from the west adjoining property at concentrations high enough to exceed EPA Regional Screening Levels (RSLs) (comparison criteria) for commercial sites was expected to be detected in groundwater along the western property boundary.

S&ME proposed a soil, groundwater and soil gas sampling plan to detect the potential presence of petroleum products and hazardous substances in environmental media. The following table summarizes, sample ID, medium, location, analyses, and rationale.

Table 3-1 – Summary of Sample Locations

Boring ID	No. of samples	Sample Location	Analyses	Comments/ Rationale
B1-B4	4 groundwater	Along the western boundary of subject property boundary	VOCs, PAHs, RCRA metals	Assess potential for impact resulting from operations on west adjoining property associated with the Debutts Yard/Norfolk Southern Rail Yard
SG1-SG2	2 soil gas	Southwestern region of site	VOC's TO-15	

Laboratory analysis was consistent with the following methods: volatile organic compounds (VOCs in groundwater by EPA Method 8260 and soil gas by EPA Method TO-15, *Volatile Organics in Air*), polynuclear aromatic hydrocarbons by (EPA Method 8270C-SIM), and RCRA metals (EPA Method 6010/7471).

These sample parameters were selected based on the types of petroleum and hazardous constituents and contaminants associated with the surrounding land use.

4.0 Subsurface Assessment Activities

4.1 Soil Borings

On November 8, 2018, S&ME personnel observed a subcontracted direct push drilling contractor install four (4) soil borings (B1 through B4) across the site in locations intended to encounter subsurface materials of interest. Boring and sample locations are depicted on Figure 2 (Sample Location Map). The drilling crew used a GeoProbe 7822 DT (direct push drilling methods) to install [2 1/4-inch] outside diameter (O.D.) direct push borings. Boring depths ranged from 17.8 to 20 feet below ground surface (bgs). Boring refusal was encountered during soil boring installation, and boring refusal was encountered on bedrock. Groundwater was not encountered at the time of drilling. Delayed readings are discussed in Section 4.2 and recorded on boring logs provided in Appendix A.

Subsurface soils encountered during drilling activities generally were observed at depths ranging from the surface up to 20 feet and fill soils were comprised of reddish brown to yellowish brown silty clays and residuum soils consisted of reddish brown to light brown clays.

Field headspace screening of the soil cores was performed for volatile organic compounds (VOCs) using a photoionization detector (PID), field calibrated before use using 100 parts per million (ppm) isobutylene standard. PID screening yielded values ranging from 0 to 5.5 ppm. No staining or odors attributable to suspected contamination were noted at the time of field activities. Black staining consistent with oxidation of naturally occurring minerals in soil were noted in both fill and residuum soils. Field indicators from each of the borings are documented on the boring logs included as Appendix A.

The selected soil samples were transferred from the sampling equipment to laboratory prepared containers, labeled, placed in an insulated container with ice, and transported to Pace Analytical National Center for Testing & Innovation in Mt. Juliet, Tennessee accompanied by chain-of-custody and analytical request documentation. Soil samples were submitted under "hold" request, pending groundwater collection and analysis.

4.2 Temporary Monitoring Wells

Upon completion of drilling and sampling activities, a temporary groundwater monitoring well was installed at B1 (19.8 feet bgs), B2 (17.8 feet bgs), B3 (18.2 feet bgs), and B4 (20.0 Feet bgs). Each monitoring well was constructed with 1-inch diameter, Schedule 40 PVC. Fifteen feet of machine-slotted PVC screen was installed at the bottom of the borehole, with solid riser extending from the top of the screen to 1 to 2 feet above ground surface.

The well annulus was filled with a 20/30 grade silica sand filter pack to approximately 2 feet above the top of the screened interval. Bentonite chips were installed above the filter pack to ground surface to seal the screened interval from surface water infiltration through the boring annulus. Monitoring well construction details are included on the prepared boring logs provided in Appendix A.

Delayed static water level measurements were collected at each temporary well on November 8, 2018 using properly decontaminated water-level indicator. The delayed water level measurements identified static groundwater levels at 18.3 feet bgs at B1, 11.79 feet bgs at B2, and 18.0 feet bgs at B3, and 18.5 feet bgs at B4.

Following well installation and depth to water measurements, the temporary monitoring well was developed using a peristaltic pump and dedicated polyethylene tubing to remove at least three well casing volumes of groundwater or by purging the well dry and allowing it to recharge to original static water level. This process was intended to remove groundwater disturbed during well installation, reduce turbidity, and facilitate the collection of representative groundwater samples from the formation. No noticeable sheens of odors were noted in purge water removed from temporary wells. Quiescent sampling was utilized for RCRA metals and the samples were collected 24 hours or later after the installation and collection of VOCs and PAHs to reduce the potential for interference from sample turbidity. The groundwater samples were transferred from the temporary well into laboratory prepared containers, labeled, placed in an insulated container with ice, and transported to Pace Analytical National Center for Testing & Innovation in Mt. Juliet, Tennessee accompanied by completed chain-of-custody and analytical request documentation. A copy of the groundwater sampling forms is included in Appendix A.

4.3 Soil Gas

On November 14 and 19, 2018, S&ME personnel completed the installation of two exterior soil gas sampling point (SG1 and SG2) as depicted on Figure 2 (Sample Location Map). Due to saturated conditions, sample collection was delayed relative to the installation of the soil borings and samples were collected on different days.

Sampling probe installation was conducted using an a soil vapor probe rod and electric rotary hammer drill, stainless steel expendable points, and modified post-run tubing as described below:

- At each exterior soil sample location (SG1 and SG2), a stainless steel tile (solid) probe was advanced using the hammer drill to an approximate depth of 3 feet bgs and extracted from the sample location. An expendable stainless steel probe point, connected to a hollow stainless steel drive rod, was then driven the remaining depth to allow for sufficient embedment of the expendable point.
- The expendable point was connected to a ¼-inch outer diameter (O.D.) nylon tube threaded through the drive rod. At the target depth, the drive rod was extracted from the hole leaving the expendable point and sample train at the target depth.
- The sample train tubing was fitted with push-to-connect valves to enhance the integrity of the sampling system and provide an outlet for purging ambient air. Hydrated bentonite was used to create a surface seal between the ground surface and the sample train tubing.
- The sample train was connected to a 6-liter SUMMA canister and vacuum-tested using a hand held vacuum pump at a vacuum of at least 20 inches Hg for two minutes to test that a sufficient seal between the tubing and sample train fittings had been established.
- The total volume of the borehole, sample train tubing, and valves was calculated and converted to liters of air. A total of three volumes of ambient air were purged from the sample train using a low-volume air sampling pump calibrated to a flow of 0.198 L/min.
- Prior to sample collection, a paper towel treated with 70% isopropyl alcohol (2-propanol) was placed loosely on the bentonite ground seal. The 2-propanol was utilized as a tracer compound to verify the integrity of the closed sampling system (TDEC-DUST Technical Guidance Document 018).

Upon completion of the installation and initial testing of each soil vapor train system, the soil gas was sampled using 6-liter SUMMA canisters at each selected location. Each canister is received from the laboratory at a preset vacuum of approximately -30 inches of Hg.

Each canister was equipped with a pre-set vacuum regulator. This mechanism was factory-machined to allow for the sample to be drawn into the canister over a period of thirty minutes. Start and end times for sample collection and vacuum pressures were recorded for each sample. Field data collected from the soil gas sampling activities are documented in the Soil Gas Field Log, included in Appendix A.

Following the soil gas sampling event, the two sample canisters were sealed, packed, and shipped under chain of custody to Pace Analytical National Center for Testing & Innovation in Mt. Juliet, Tennessee for laboratory analyses of volatile organic compounds (VOCs) by EPA Method TO-15.

4.4 Verification of the Conceptual Site Model

The conditions identified in subsurface exploration generally corresponded with the conceptual site model.

4.5 Other Field Procedures

Before and after installation of each of the soil borings, drilling equipment, sampler barrels, and soil gas equipment were decontaminated by scrubbing in a non-phosphate detergent solution followed by a double tap water rinse.

Upon completion of the sampling activities, soil borings not converted to a temporary monitoring well and soil gas sample points were backfilled with bentonite chips. The temporary well materials will be removed upon receipt and review of laboratory analysis and the borings backfilled (plugged and abandoned). The wells will be properly abandoned and plugged by removing the well casing and screen then plugging the boring with bentonite.

4.6 Field Deviations

Delayed sampling of B-2 and B-4 for RCRA metals occurred due to turbidity in the wells. Samples were collected on November 14, 2018. SG1 and SG2 were collected on November 14 and 19, 2018, respectively, due to saturated conditions.

5.0 Analytical Results

5.1 Evaluation Criteria

Constituent concentrations detected in the soil, groundwater and soil gas were compared to the November 2018 US EPA Regional Screening Levels (RSLs) (TCR=1x10^{-6} and THQ=0.1) for Commercial/Industrial (RSLind) land use. The RSLs are risk based numerical criteria used for generic screening values, not *de facto* cleanup standards. Comparison criteria for groundwater default to RSLs for tap water (RSLtap) and in some cases the Maximum Contaminant Limit (MCL), if established, based on drinking water standards. Soil gas samples were compared to current US EPA Commercial/Industrial Air RSLs (November 2018) adjusted to account for attenuation of vapor concentrations at a depth of three feet below ground surface to ambient air conditions using an attenuation factor of 0.03.

Results of the laboratory analyses are discussed below and summarized in Tables 1 and 2, following the text of this report. Copies of analytical reports and custody documentation are included as Appendix B.

5.2 Groundwater Analytical Results

Groundwater samples were collected from four (B1 through B4) temporary monitoring wells and submitted for analysis of VOCs, PAHs, and RCRA metals, as presented in Table 3-1, Section 3.1.2. Table 2, following the text of this report, presents the results of detected and non-detect constituents as compared to corresponding comparison criteria. The list of VOC compounds presented on Table 2

represents only a partial list of compounds analyzed, but includes those VOCs expected to be encountered based on historical offsite operations.

No concentrations of VOCs or PAHs were identified in excess of the laboratory detection limits in samples B1through B4.

In the samples collected from B1 through B4, two compounds (barium and lead) were identified in excess of the laboratory detection limit. Barium was detected in each of the samples collected from B-1 through B-4 at concentrations ranging from 0.0255 through 0.0941 milligrams per liter (mg/L), which are below both the RSLtap of 0.38 mg/L and the MCL of 2 mg/L. Lead, detected at B-2 at 0.00657, is below the RSLtap/MCL of 0.015 mg/L.

Note that the laboratory method detection limits for the following compounds, benzene, naphthalene, trichloroethene, vinyl chloride, benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, arsenic, cadmium, and mercury exceeded the corresponding RSLtap. As such, it cannot be determined whether these compounds are present above the corresponding RSL. However, in cases where the laboratory detection limit exceeded the corresponding RSLtap and there is an established MCL (benzene, trichloroethene, vinyl chloride, benzo(a)pyrene, arsenic, cadmium, and mercury), the laboratory detection limit did not exceed the corresponding MCL.

5.3 Soil Gas Analytical Results

Each of the collected soil gas samples (SG1 and SG2) were analyzed for VOCs by EPA Method TO-15. Table 2, following the text of this report, presents the results of detected and non-detect constituents as compared to the respective comparison criteria RSLind adjusted to account for attenuation.

Fourteen (14) of the 67 compounds analyzed under EPA Method TO-15 were identified above the corresponding laboratory detection limit in at least one of the two collected samples (SG1 and SG2): acetone, benzene, carbon disulfide, chloroform, ethanol, trichlorofluoromethane, dichlorodifluoromethane, n-hexane, 2-butanone (MEK), 2-propanol, propene, styrene, toluene, and 1,2,4-trimethylbenzene were detected. The detected compounds did not exceed the corresponding-adjusted comparison criteria.

Two (2) of the detected compounds (ethanol and 2-propanol) have no established RSL. Detected concentrations of 2-propanol, a tracer compound used for leak testing purposes, were well below the TDEC-DUST threshold of 10,000,000 ug/m^3.

6.0 Findings and Conclusions

S&ME's findings, based on the results of field activities and laboratory analytical results documented in this Limited Phase II ESA report and in consideration of our understanding of your objectives, are summarized as follows:

This assessment has identified the presence of petroleum-related and/or hazardous substances in groundwater and soil gas.

Groundwater

No detectable concentrations of VOCs or PAHs were identified in the four groundwater samples collected. In the case of RCRA metals, two compounds (barium and lead) were identified in excess of the laboratory detection limit, but below the corresponding comparison criteria (RSLtap and/or MCL).

Soil Gas

Detectable concentrations of up to fourteen compounds were identified in the two soil gas samples collected. The detected compounds were not identified at concentrations in excess of corresponding comparison criteria (RSLind adjusted for attenuation).

Based on the assessment results presented herein, and in consideration of our understanding of the City of Chattanooga c/o Barge Design Solutions communicated objectives, additional assessment does not appear warranted.

7.0 Limitations

This report is an instrument of service of S&ME. The report was prepared for and is intended for the exclusive use of The City of Chattanooga c/o Barge Design Solutions. The report contents may not be relied upon by any party without the express written permission of S&ME. The scope of services was not intended to provide the information needed to completely establish the quantity or extent of impacted media present at the site or to determine the cost of remediating the site. The scope of services S&ME implemented was based, in part, on rules and regulations that S&ME understood to be current or expected at the time S&ME developed its proposal. Changes in regulations, interpretations, and/or enforcement policies may occur at any time and such changes could affect the need for and extent of remediation, if required. Any additional information about this site that becomes available should be provided to S&ME for its review, so S&ME can modify its recommendations as necessary.

The findings and conclusions presented in this report are based on conditions encountered at the locations sampled on the dates of S&ME's investigations and should not be relied upon to precisely represent conditions at any other time. S&ME's findings and conclusions included in this report are based on S&ME's observations of existing site conditions and the results of a limited program of subsurface exploration, sample screening, and chemical testing. The concentration of contaminants measured may not be representative of conditions between locations sampled. Recognize that conditions may change at any sampled or un-sampled location as a function of time in response to natural conditions, chemical reactions, and/or other events, including but not limited to altering site grades and other redevelopment activities. Conclusions about site conditions under no circumstances comprise a warranty that conditions in all areas within the site are of the same condition as those sampled.

Except as may have been measured by groundwater elevation or other quantifiable data; the primary direction of groundwater flow was assumed to be dictated by topography. Additionally, except as may have been measured by lateral delineation based on quantifiable data, the groundwater flow direction was assumed to control the distribution of impact, if present.

S&ME's professional services have been performed using that degree of care and skill ordinarily exercised, under similar conditions, by reputable environmental consultants undertaking similar studies and practicing in this locality. No other warranty; express or implied, is intended or made with respect to this report or S&ME's services. This assessment was not exhaustive and users of this report should consider the scope and limitations of, and related to, these services when developing their opinions as to environmental risks associated with the subject property.

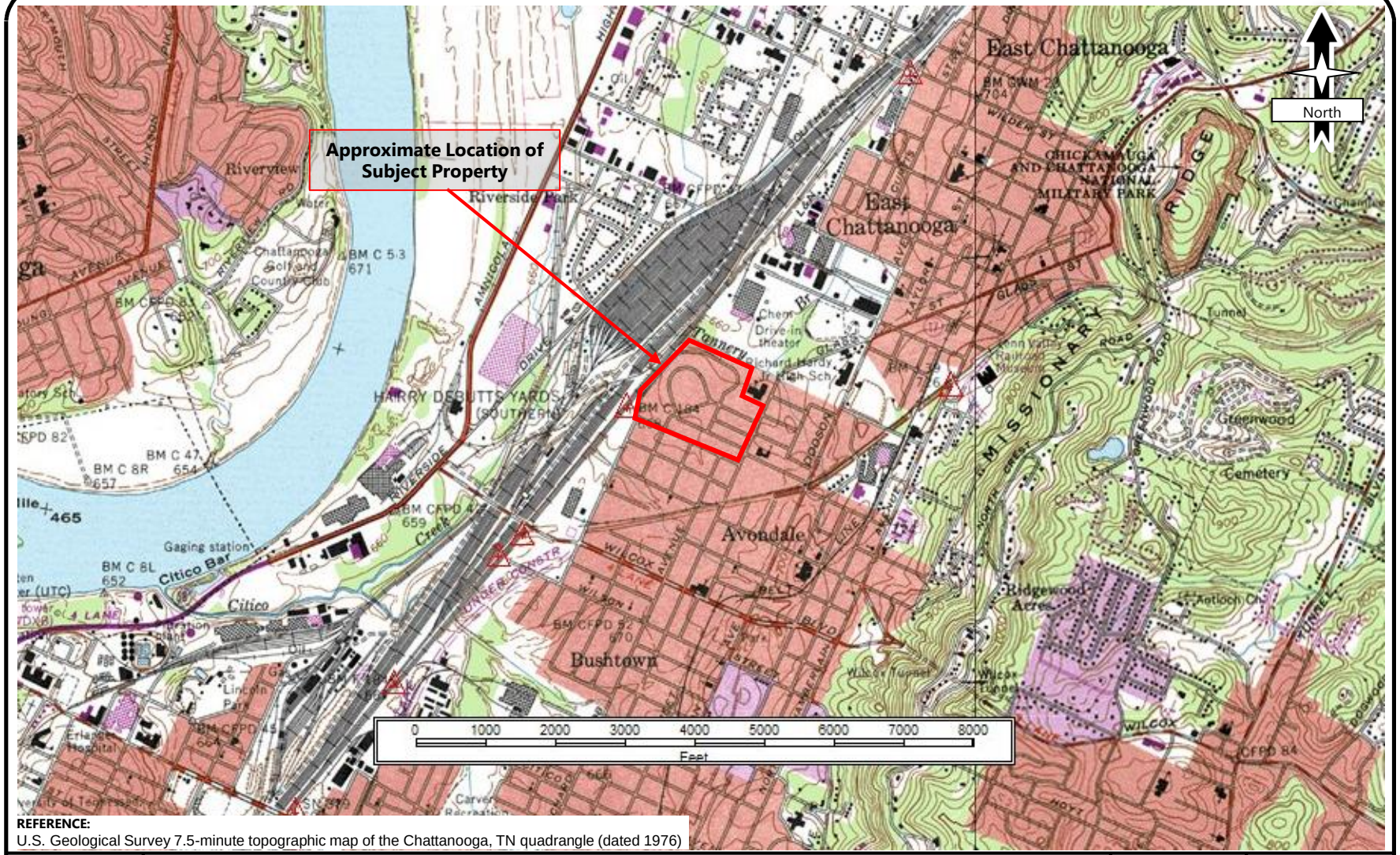
8.0 References

Phase I Environmental Site Assessment, Former Harriet Tubman Homes Sholar Avenue, Chattanooga, Hamilton County, Tennessee, S&ME Project No. 4181-18-046, dated November 6, 2018

US EPA Regional Screening Level (RSL) Summary Table (TCR=1E-6; HQ=0.1) dated November 2018

Appendices

Figures

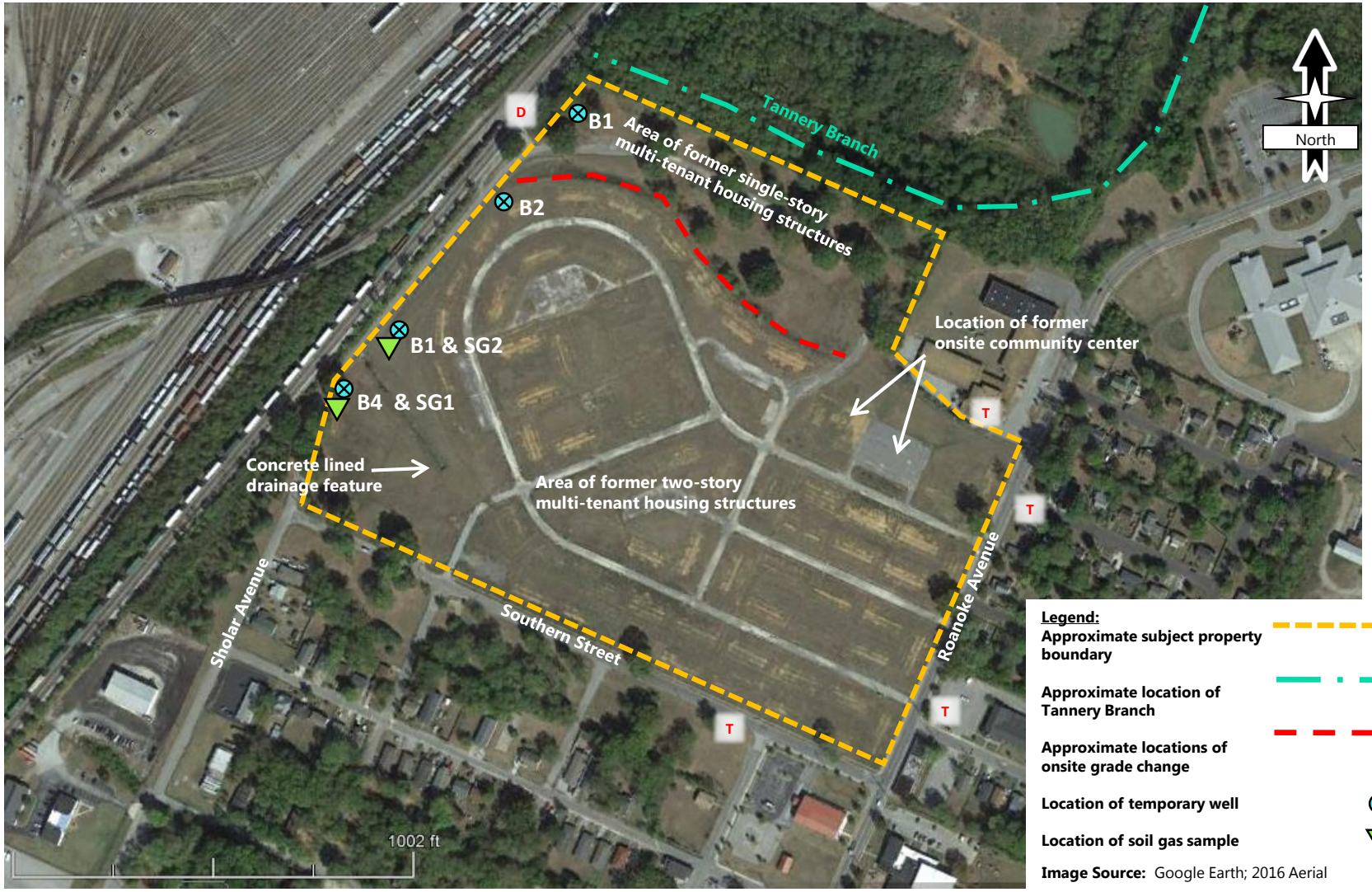


REFERENCE:
U.S. Geological Survey 7.5-minute topographic map of the Chattanooga, TN quadrangle (dated 1976)

USGS TOPOGRAPHIC MAP

FORMER HARRIET TUBMAN PROPERTY
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

SCALE: AS SHOWN
DATE: 11/26/2018
PROJECT NUMBER: 4181-18-037
FIGURE NO. 1



Boring Location Plan

FORMER HARRIET TUBMAN PROPERTY
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE

SCALE:	FIGURE NO.
AS SHOWN	2
DATE: 11-26-2018	
PROJECT NUMBER 4181-18-046	

Tables

GROUNDWATER (Concentrations in milligrams per Liter (mg/L))					
Temporary Well ID	**B1**	**B2**	**B3**	**B4**	**COMPARISON CRITERIA**
Temporary Well Location	**Northwestern portion of property along Sholar Avenue**	**Northwestern central portion of property along Sholar Avenue**	**Western central portion of property along Sholar Avenue**	**Southwestern portion of property along Sholar Avenue**	**EPA Regional Screening Levels Tap Water or (MCL)**
VOLATILE ORGANIC COMPOUNDS (VOCs)					
BENZENE	**<0.00100**	**<0.00100**	**<0.00100**	**<0.00100**	**0.00046** (0.005)
CIS-1,2-DICHLOROETHENE	<0.00100	<0.00100	<0.00100	<0.00100	0.0036 (0.070)
ETHYLBENZENE	<0.00100	<0.00100	<0.00100	<0.00100	0.0015 (0.7)
METHYL TERT-BUTYL ETHER	<0.00100	<0.00100	<0.00100	<0.00100	0.014
NAPHTHALENE	**<0.00500**	**<0.00500**	**<0.00500**	**<0.00500**	**0.00017**
TETRACHLOROETHENE	<0.00100	<0.00100	<0.00100	<0.00100	0.0041 (0.005)
TOLUENE	<0.00100	<0.00100	<0.00100	<0.00100	0.11 (1)
TRICHLOROETHENE	**<0.00100**	**<0.00100**	**<0.00100**	**<0.00100**	**0.00028** (0.005)
VINYL CHLORIDE	**<0.00100**	**<0.00100**	**<0.00100**	**<0.00100**	**0.000019** (0.002)
XYLENES, TOTAL	<0.00300	<0.00300	<0.00300	<0.00300	0.019 (10)
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)					
ANTHRACENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.18
ACENAPHTHENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.053
ACENAPHTHYLENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NONE ESTABLISHED
BENZO(A)ANTHRACENE	**<0.0000500**	**<0.0000500**	**<0.0000500**	**<0.0000500**	**0.00003**
BENZO(A)PYRENE	**<0.0000500**	**<0.0000500**	**<0.0000500**	**<0.0000500**	**0.000025** (0.0002)
BENZO(B)FLUORANTHENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.00025
BENZO(G,H,I)PERYLENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NONE ESTABLISHED
BENZO(K)FLUORANTHENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.0025
CHRYSENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.025
DIBENZ(A,H)ANTHRACENE	**<0.0000500**	**<0.0000500**	**<0.0000500**	**<0.0000500**	**0.000025**
FLUORANTHENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.08
FLUORENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.029
INDENO(1,2,3-CD)PYRENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.00025
NAPHTHALENE	**<0.000250**	**<0.000250**	**<0.000250**	**<0.000250**	**0.00017**
PHENANTHRENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	NONE ESTABLISHED
PYRENE	<0.0000500	<0.0000500	<0.0000500	<0.0000500	0.012
RCRA METALS					
ARSENIC	**<0.0100**	**<0.0100**	**<0.0100**	**<0.0100**	**0.000052** (0.01)
BARIUM	0.0941	0.0560	0.0255	0.0496	0.38 (2)
CADMIUM	**<0.00200**	**<0.00200**	**<0.00200**	**<0.00200**	**0.00092** (0.005)
CHROMIUM	<0.0100	<0.0100	<0.0100	<0.0100	0.10
LEAD	<0.00500	0.00657	<0.00500	<0.00500	0.015
MERCURY	**<0.000200**	**<0.000200**	**<0.000200**	**<0.000200**	**0.000063** (0.002)
SELENIUM	<0.0100	<0.0100	<0.0100	<0.0100	0.010 (0.050)
SILVER	<0.00500	<0.00500	<0.00500	<0.00500	0.0094

Notes:

Checked By: VJH

VOCs list presented is a reduced list of analytes

Groundwater samples collected on 11-8-18, 11-9-18, and 11-14-18

Gray shading indicated detected compound

Bold text indicates concentration detected or RDL/ MDL greater than a comparison criterion-November 2018 EPA RSLs/MCL

Analytical methods as presented in text of report, and attached laboratory results.

< = Below Method Detection Limit, not detected at Estimated Quantitation Limit (EQL).

See analytical reports.

NA- Not Analyzed

Table 1

Summary of Detected Compounds and Results of Groundwater Analysis (mg/L)

Former Harriet Tubman Homes

Sholar Avenue

Chattanooga, Tennessee

Project No. 4181-18-046

Soil Gas (Concentration in (micrograms per cubic meter (ug/m^3))			
General Area of Assessment	**Southwestern property boundary**		**EPA Target Soil Gas Concentrations (Risk = 1 x 10^{-6} and THQ=0.1) Attenuation factor= 0.03**
Sample Location ID	**SG1**	**SG2**	
Sample Depth	**3 feet**	**3 feet**	**Commercial**
VOCs (TO-15)			
ACETONE	19.6	23.9	466,666.7
ALLYL CHLORIDE	<0.626	<0.626	14.7
BENZENE	1.69	<0.639	53
BENZYL CHLORIDE	<1.04	<1.04	8.3
BROMODICHLOROMETHANE	<1.34	<1.34	11.00
BROMOFORM	<6.21	<6.21	366.7
BROMOMETHANE	<0.776	<0.776	73.3
1,3-BUTADIENE	<4.43	<4.43	13.7
CARBON DISULFIDE	1.92	1.15	10,333.3
CARBON TETRACHLORIDE	<1.26	<1.26	66.7
CHLOROBENZENE	<0.924	<0.924	733.3
CHLOROETHANE	<0.528	<0.528	146,666.7
CHLOROFORM	1.36	<0.973	17.7
CHLOROMETHANE	<0.413	<0.413	1,300.0
2-CHLOROTOLUENE	<1.03	<1.03	None established
CYCLOHEXANE	<0.689	<0.689	86,667
CHLORODIBROMOMETHANE	<1.70	<1.70	15.0
1,2-DIBROMOETHANE	**<1.54**	**<1.54**	**0.70**
1,2-DICHLOROBENZENE	<1.20	<1.20	2,933
1,3-DICHLOROBENZENE	<1.20	<1.20	None established
1,4-DICHLOROBENZENE	<1.20	<1.20	36.7
1,2-DICHLOROETHANE	<0.810	<0.810	15.7
1,1-DICHLOROETHANE	<0.802	<0.802	257
1,1-DICHLOROETHENE	<0.793	<0.793	2,933
CIS-1,2-DICHLOROETHENE	<0.793	<0.793	None established
TRANS-1,2-DICHLOROETHENE	<0.793	<0.793	None established
1,2-DICHLOROPROPANE	<0.924	<0.924	40.0
CIS-1,3-DICHLOROPROPENE	<0.908	<0.908	103.3
TRANS-1,3-DICHLOROPROPENE	<0.908	<0.908	103.3
1,4-DIOXANE	<0.721	<0.721	83.3
ETHANOL	14.5	<1.19	None established
ETHYLBENZENE	<0.967	<0.867	163.3
4-ETHYLTOLUENE	<0.982	<0.982	None established
TRICHLOROFLUOROMETHANE	1.26	1.12	10,333
DICHLORODIFLUOROMETHANE	1.30	1.56	1,466.7
1,1,2-TRICHLOROTRIFLUOROETHANE	<1.53	<1.53	733,333.3
1,2-DICHLOROTETRAFLUOROETHANE	<1.40	<1.40	None established
HEPTANE	<0.818	<0.818	6,000
HEXACHLORO-1,3-BUTADIENE	<6.73	<6.73	18.7
N-HEXANE	1.79	1.24	10,333.3
ISOPROPYLBENZENE	<0.983	<0.983	6,000
METHYLENE CHLORIDE	<0.694	<0.694	8,667
METHYL BUTYL KETONE (2-HEXANONE)	<5.11	<5.11	433.3
2-BUTANONE (MEK)	4.76	<3.69	73,333.3
4-METHYL-2-PENTANONE (MIBK)	<5.12	<5.12	43,333.3
METHYL METHACRYLATE	<0.819	<0.819	10,333.3
METHYL TERT-BUTYL ETHER	<0.721	<0.721	1,566.7
NAPHTHALENE	<3.30	<3.30	12.0
2-PROPANOL	4.31	4.87	None established
PROPENE	4.21	<0.689	43,333.3
STYRENE	0.930	<0.851	14,666.7
1,1,2,2-TETRACHLOROETHANE	<1.37	<1.37	7.0
TETRACHLOROETHENE	<1.36	<1.36	600
TETRAHYDROFURAN	<0.590	<0.590	29,333
TOLUENE	2.31	1.94	73,333.3
1,2,4-TRICHLOROBENZENE	<4.66	<4.66	29
1,1,1-TRICHLOROETHANE	<1.09	<1.09	73,333.3
1,1,2-TRICHLOROETHANE	<1.09	<1.09	2.9
TRICHLOROETHENE	<1.07	<1.07	29
1,2,4-TRIMETHYLBENZENE	1.20	<0.982	103
1,3,5-TRIMETHYLBENZENE	<0.982	<0.982	210
2,2,4-TRIMETHYLPENTANE	<0.934	<0.934	None established
VINYL CHLORIDE	<0.511	<0.511	93.3
VINYL BROMIDE	<0.875	<0.875	12.7
VINYL ACETATE	<0.704	<0.704	2,933
M&P-XYLENE	<1.73	<1.73	None established
O-XYLENE	<0.867	<0.867	1,466.7
TOTAL XYLENES	ND	ND	1,466.7

Notes:

Checked by: VJH

Soil gas samples collected on 11-14-18 and 11-19-2018

Gray shaded cells indicate a concentration identified above the laboratory detection limit

Bold text indicates concentration detected or detection limit exceeding the corresponding comparison

Comparison Criteria: Adjusted values obtained from the November 2018 EPA RSLs

Analytical methods as presented in text of report, and attached laboratory results.

< = Below Method Detection Limit, not detected at Estimated Quantitation Limit (EQL).

See analytical reports.

Table 2

Summary of Soil Gas Analytical Results (ug/m^3)

Former Harriet Tubman Homes Sholar Avenue

Chattanooga, Tennessee

Project No. 4181-18-046

Appendix A

Field Boring Logs, Well Construction Details, Groundwater Data Sheets and Soil Gas Field Log

ENVIRONMENTAL BORING RECORD

Former Harriet Tubman Homes Limited Phase II ESA

Chattanooga, Tennessee

S&ME Job No. 4181-18-046

BORING NO. B1

SHEET 1 of 1

Logged by: P. Hubbard	Elevation: Not surveyed	GROUNDWATER
Remarks: Soil descriptions based on visual observation of obtained samples.	Start Time/Date: 11/8/2018 8:45 AM Finish Time/Date: 11/8/2018 9:05 AM	Date / Water Level
	Detector: PID Rig Type: Geo-Probe Drilling Method: Direct Push	ATD / Not encountered 11-8-18 / 18.3 ft

G	Well Detail	Elev. (ft.)	Depth (ft.)	Material Description	Lith.	S	R	Sample Remarks	Detector Reading
			0	TOPSOIL - RESIDUUM SILTY CLAY (CH), Reddish brown sandy clay with limestone fragments, dry to moist - FILL			80	**Sample No. 1** - 0' to 2.5' No odor	0
								Sample No. 2 - 2.5' to 5' No odor	0
			5	SILTY CLAY (CH), Yellowish brown silty clay, dry to moist - FILL SILTY CLAY (CH), Reddish brown silty clay with chert, dry to moist, moist at 9' - RESIDUUM			75	**Sample No. 3** - 5' to 7.5' No odor	0.5
								Sample No. 4 - 7.5' to 10' No odor	4.6
			10				60	**Sample No. 5** - 10' to 12.5' No odor	3.8
				SILTY CLAY (CH), Reddish brown silty clay with chert and limestone fragments, moist and wet at 10' and 15-17.3' - RESIDUUM				**Sample No. 6** - 12.5' to 15' No odor	3.2
			15				62	**Sample No. 7** - 15' to 17.5' No odor	0.7
▼				SILTY CLAY (CH), Blueish gray to brown silty clay with black iron oxidation, wet - RESIDUUM				**Sample No. 8** - 17.5' to 19.8' No odor	1.6
			20	*Boring refusal encountered at 19.8 feet*					
			25						

ENVIRONMENTAL LOG SIMPLE FORMER HARRIET TUBMAN.GPJ 2016.GDT 11/29/18

ENVIRONMENTAL BORING RECORD

Former Harriet Tubman Homes Limited Phase II ESA

Chattanooga, Tennessee

S&ME Job No. 4181-18-046

BORING NO. B2

SHEET 1 of 1

Logged by: P. Hubbard	Elevation: Not surveyed	GROUNDWATER
Remarks: Soil descriptions based on visual observation of obtained samples.	Start Time/Date: 11/8/2018 9:27 AM Finish Time/Date: 11/8/2018 9:47 AM	Date / Water Level ATD / Not encountered 11-8-18 / 11.79 ft
	Detector: PID Rig Type: Geo-Probe Drilling Method: Direct Push	

G	Well Detail	Elev. (ft.)	Depth (ft.)	Material Description	Lith.	S	R	Sample Remarks	Detector Reading
			0	SILTY CLAY (CH), Reddish yellow silty clay, moist to dry - FILL			100	**Sample No. 1** - 0' to 2.5' No odor	1.7
				SILTY CLAY (CH), Yellowish red silty clay, moist to dry - FILL				**Sample No. 2** - 2.5' to 5' No odor	3.1
			5				100	**Sample No. 3** - 5' to 7.5' No odor	2.4
				SILTY CLAY (CH), Light brown to light red silty clay with black oxidation, moist to dry, wet from 11.2-15' - RESIDUUM				**Sample No. 4** - 7.5' to 10' No odor	2.1
▽			10				100	**Sample No. 5** - 10' to 12.5' No odor	4.5
								Sample No. 6 - 12.5' to 15' No odor	0.8
			15	SILTY CLAY (CH), Light brown to sandy silty clay, wet, dry lens of limestone at 17.0' - RESIDUUM			90	**Sample No. 7** - 15' to 17.8' No odor	3.7
				Boring refusal encountered at 17.8 feet					
			20						

ENVIRONMENTAL LOG SIMPLE FORMER HARRIET TUBMAN.GPJ 2016.GDT 11/29/18

ENVIRONMENTAL BORING RECORD

Former Harriet Tubman Homes Limited Phase II ESA

Chattanooga, Tennessee

S&ME Job No. 4181-18-046

BORING NO. B3

SHEET 1 of 1

Logged by: P. Hubbard	Elevation: Not surveyed	GROUNDWATER
Remarks: Soil descriptions based on visual observation of obtained samples.	Start Time/Date: 11/8/2018 10:05 AM Finish Time/Date: 11/8/2018 10:28 AM	Date / Water Level ATD / Not encountered 11-8-18 / 18.0 ft
	Detector: PID Rig Type: Geo-Probe Drilling Method: Direct Push	

G	Well Detail	Elev. (ft.)	Depth (ft.)	Material Description	Lith.	S	R	Sample Remarks	Detector Reading
			0	TOPSOIL - FILL SILTY CLAY (CH) Brownish red silty clay with black iron oxidation, dry to moist - FILL			100	**Sample No. 1** - 0' to 2.5' No odor	2.1
								Sample No. 2 - 2.5' to 5' No odor	2.3
			5				100	**Sample No. 3** - 5' to 7.5' No odor	5.1
								Sample No. 4 - 7.5' to 10' No odor	2.1
			10				100	**Sample No. 5** - 10' to 12.5' No odor	0.8
				SILTY CLAY (CH), Light brown to tan silty clay, wet to moist, black iron oxidation at 14.0' - RESIDUUM				**Sample No. 6** - 12.5' to 15' No odor	2.6
			15	SILTY CLAY (CH) Brownish red silty clay, moist to dry - RESIDUUM SILTY CLAY (CH), Light brown silty clay with limestone fragments, wet at 17.5-17.9' and 18.1-18.2', moist to dry - RESIDUUM			80	**Sample No. 7** - 15' to 17.5' No odor	5.2
				Boring refusal encountered at 18.2 feet				**Sample No. 8** - 17.5' to 18.2' No odor	3.9
			20						
			25						

ENVIRONMENTAL BORING RECORD

Former Harriet Tubman Homes Limited Phase II ESA

Chattanooga, Tennessee

S&ME Job No. 4181-18-046

BORING NO. B4

Logged by: P. Hubbard	Elevation: Not surveyed	GROUNDWATER
Remarks: Soil descriptions based on visual observation of obtained samples.	Start Time/Date: 11/8/2018 10:45 AM Finish Time/Date: 11/8/2018 11:10 AM	Date / Water Level ATD / Not encountered 11-8-18 / 18.50 ft
	Detector: PID Rig Type: Geo-Probe Drilling Method: Direct Push	

G	Well Detail	Elev. (ft.)	Depth (ft.)	Material Description	Lith.	S	R	Sample Remarks	Detector Reading
			0	TOPSOIL - FILL SILTY CLAY (CH), Redish brown to brownish red silty clay, dry to moist - FILL			60	**Sample No. 1** - 0' to 2.5' No odor	2.4
								Sample No. 2 - 2.5' to 5' No odor	4.4
			5				90	**Sample No. 3** - 5' to 7.5' No odor	5.5
								Sample No. 4 - 7.5' to 10' No odor	3.2
			10	SILTY CLAY (CH), Light brown with tan to gray areas, moist to dry with limestone and chert fragments with black iron oxidation - RESIDUUM			100	**Sample No. 5** - 10' to 12.5' No odor	3.6
								Sample No. 6 - 12.5' to 15' No odor	3.6
			15	SILTY CLAY (CH), Brown silty clay with black iron oxidation, moist to dry, wet at 18.6-19.4', light brown to gray at 19.4' - RESIDUUM			100	**Sample No. 7** - 15' to 17.5' No odor	3.2
								Sample No. 8 - 17.5' to 20' No odor	2.5
			20	*Boring refusal encountered at 20.0 feet*					
			25						

Project Number: 4181-18-0416

WATER SAMPLE DATA SHEET

Client: City of Chattanooga
Location: Tubman Homes
Event: Temp wells
Date: 11-8-18
Weather:

Well ID: B-1
Sample ID: B-1
Personnel: Paul Hubbell

Total Depth: 19.8 FT.(BTOC)
Depth to water: 18.3 FT.(BTOC)
Water Column: 1.5 FT.
Well Diameter 0.041 GAL/FT.
Well Volume: .06 GAL.
Total Purge Volume: .18 GAL.
Purge Device: Geo Pump

Measuring Device: Solinst Water Level Meter
Date and Time: 3:27 11-8-18

WELL DIAMETER
[(**2**" DIA.= .163 GAL/FT.) (**4**" DIA. = .653 GAL/FT.)]
(**1**" DIA.= .041 GAL/FT.) (**1 1/4** " DIA.= .064 GAL/FT.)

FIELD PARAMETERS

Time	Purge Vol. (gals)	Comments
3:35	.06	Semi clear
3:48	.12	clear
4:00	.18	clear

Sample information: method, container number, size, and type, preservative used.
Sample analysis: VOC's PAH's RCRA Metals

Development time: 3:30pm
Development device: geo pump

Sample Time 4:28 Metal @ 8:38am 11-9-18
Sample Appearance (clarity, etc.) Clear for VOC's & PAH's Clear for Metals

Notes: Metals collected within 24 hours of original purge on 11-9-18

Signed by: [signature] 11-8-18 & 11-9-18
Date

Project Number: 4181-18-046

WATER SAMPLE DATA SHEET

Client: City of Chattanooga
Location: Tubman Homes
Event: Temp wells
Date: 11-8-18
Weather:

Well ID: B-2
Sample ID: B-2
Personnel: Paul Hubbard

Total Depth: 17.8 FT.(BTOC)
Depth to water: 11.79 FT.(BTOC)
Water Column: 6.01 FT.
Well Diameter 0.041 GAL/FT.
Well Volume: .25 GAL.
Total Purge Volume: .75 GAL.
Purge Device: Geo Pump

Measuring Device: Solinst Water Level Meter
Date and Time: 11:35 11-8-18

WELL DIAMETER
[(**2**" DIA.= .163 GAL/FT.) (**4**" DIA. = .653 GAL/FT.)]
(**1**" DIA.= .041 GAL/FT.) (**1 1/4** " DIA.= .064 GAL/FT.)

FIELD PARAMETERS

Time	Purge Vol. (gals)	Comments
11:50	.25	semi clear
11:57	.50	semi clear
12:18	.75	Ran dry at .6 gal @ 12:01 very light brown to semi clear

Sample information: method, container number, size, and type, preservative used.
Sample analysis: VOC's PAH's RCRA metals

Development time: 11:44am
Development device: geo pump

Sample Time 12:35 pm Metals at 9:13 on 11-9-18 not submitted
Sample Appearance (clarity, etc.) Light brown to semi clear for VOC & PAH

Notes: well purged to dry and allowed to recharge for the re sample of metals on 11-14-18 @ 10:50am

Signed by: [signature] 11-8-18 & 11-14-18
Date

Project Number: 4181-18-046

WATER SAMPLE DATA SHEET

Client: City of Chattanooga
Location: Tubman Homes
Event: Temp Wells
Date: 11-8-18
Weather:

Well ID: B-3
Sample ID: B-3
Personnel: Paul Hubbard

Total Depth: 18.20' FT.(BTOC)
Depth to water: 18.0 FT.(BTOC)
Water Column: .20 FT.
Well Diameter 0.041 GAL/FT.
Well Volume: .008 GAL.
Total Purge Volume: .03 GAL.
Purge Device: Geo Pump

Measuring Device: Solinst Water Level Meter
Date and Time: 12:45pm 11-8-18

WELL DIAMETER
[(**2**" DIA.= .163 GAL/FT.) (**4**" DIA. = .653 GAL/FT.)]
(**1**" DIA.= .041 GAL/FT.) (**1 1/4** " DIA.= .064 GAL/FT.)

FIELD PARAMETERS

Time	Purge Vol. (gals)	Comments
12:55	.01	semi clear
1:05	.02	semi clear
1:25	.03	clear

Sample information: method, container number, size, and type, preservative used:

Sample analysis: VOC's PAH's RCRA Metals

Development time: 12:48pm
Development device: geo pump

Sample Time 2:00pm Metals @ 9:22am 11-9-18
Sample Appearance (clarity, etc.) clear

Notes: 1.024 oz to .008 gallon Metals sampled within 24 hrs of original purge

Signed by: Paul Hubbard 11-8-18 & 11-9-18
Date

Project Number: 4181-18-046

WATER SAMPLE DATA SHEET

Client: City of Chattanooga
Location: Tubman Homes
Event: Temp Wells
Date: 11-8-18
Weather:

Well ID: B-4
Sample ID: B-4
Personnel: Paul Hubbard

Total Depth: 20.0 FT.(BTOC)
Depth to water: 18.50 FT.(BTOC)
Water Column: 1.5 FT.
Well Diameter 0.041 GAL/FT.
Well Volume: .06 GAL.
Total Purge Volume: .18 GAL.
Purge Device: Geo Pump

Measuring Device: Solinst Water Level Meter
Date and Time: 11-8-18 2:07pm
WELL DIAMETER
[(2" DIA.= .163 GAL/FT.) (4" DIA. = .653 GAL/FT.)]
(1" DIA.= .041 GAL/FT.) (1 1/4 " DIA.= .064 GAL/FT.)

FIELD PARAMETERS

Time	Purge Vol. (gals)	Comments
2:22	.06	semi: clear to light brown
2:38	.12	semi: clear
2:47	.18	clear

Sample information: method, container number, size, and type, preservative used.

Sample analysis: VOC's PAH's RCRA Metals

Development time: 2:11 pm
Development device: geo pump

Sample Time 3:22pm Metals collected 11-14-18 @ 10:02am
Sample Appearance (clarity, etc.) clear for VOC's & PAH's clear for Metals

Notes: .06 gal = 7.6oz well was purged to a dry state and allowed to recharge before the sample for metals was collected

Signed by: [signature] 11-8-18 & 11-14-18
Date

Soil Gas Field Log-Sholar Ave Former Harriet Tubman Homes											
Field Data	**Units**	**Soil Gas Locations and Corresponding Values**									
Sample ID		**SG1**	**SG2**								
Physical Location		**B-4**	**B-3**								
Lab canister ID	#	9225	5753								
Lab canister volume	Liters	6	6								
Flow controller ID	#	8688	6010								
Flow controller pre-set	Minutes/ Hours	30	30								
Sample Depth	Feet	3'	3'								
Sample train purge volume	Liters	1.48	1.48								
Peak PID reading	PPM	TEST NOT PERFORMED									
Vacuum test (initial)	Inches Hg	20	20								
Vacuum test (final)	Inches Hg	20	20								
Sample start	Military time	10:13am	9:22am								
Sample stop	Military time	10:48am	9:52am								
Canister vacuum (initial)	Inches Hg	22	28								
Canister vacuum (final)	Inches Hg	2	3.0								
Total sample time	Minutes	35 min	30 min								
Temperature at time of sampling	ºF	48	55								
Date collected	Date	11/14/2018	11/19/2018								

Formula for calculating pre-sample purge volume: **(radius of the tubing (in))^2 (length of sample train (in)) (3.1416) + (radius of the borehole (in))^2 (depth of borehole (in)) (3.1416)**

Tubing size: 0.180 inches I.D.

Purge Device Flow (L/min): 0.198 L/min

Diameter of the borehole: 1 inch

Cubic inches to Liters: 1 cubic inch = 0.0164 L

Appendix B

Laboratory Data Sheets and Chain of Custody Documentation

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 17, 2018

S&ME Inc. - Hixson TN.

Sample Delivery Group:	L1043254
Samples Received:	11/10/2018
Project Number:	4181-18-046 PH431
Description:	Former Harriet Tubman Property

Report To: Johanna Heywood / Paul Hubbard
4291 HWY 58 Suite 101
Chattanooga, TN 37416

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

B-1 L1043254-01 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/08/18 16:28	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1194920	1	11/11/18 20:42	11/11/18 20:42	PP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1196513	1	11/14/18 17:06	11/15/18 00:56	CJR

B-2 L1043254-02 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/08/18 12:35	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1195031	1	11/11/18 22:35	11/11/18 22:35	JCP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1196513	1	11/14/18 17:06	11/15/18 01:18	CJR

B-3 L1043254-03 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/08/18 14:00	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1195031	1	11/11/18 22:54	11/11/18 22:54	JCP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1195406	1	11/14/18 17:10	11/15/18 04:47	CJR

B-4 L1043254-04 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/08/18 15:22	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1195031	1	11/11/18 23:13	11/11/18 23:13	JCP
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1195406	1	11/14/18 17:10	11/15/18 05:07	CJR

B-1 L1043254-05 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/09/18 08:38	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1195461	1	11/13/18 09:38	11/13/18 16:26	TCT
Metals (ICP) by Method 6010B	WG1195057	1	11/13/18 11:21	11/14/18 13:50	ST

B-3 L1043254-06 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/09/18 09:22	11/10/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1195461	1	11/13/18 09:38	11/13/18 16:29	TCT
Metals (ICP) by Method 6010B	WG1195057	1	11/13/18 11:21	11/14/18 13:53	ST

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	11/11/2018 20:42	WG1194920
Acrolein	ND		0.0500	1	11/11/2018 20:42	WG1194920
Acrylonitrile	ND		0.0100	1	11/11/2018 20:42	WG1194920
Benzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Bromobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Bromodichloromethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Bromoform	ND		0.00100	1	11/11/2018 20:42	WG1194920
Bromomethane	ND		0.00500	1	11/11/2018 20:42	WG1194920
n-Butylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
sec-Butylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
tert-Butylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Carbon tetrachloride	ND		0.00100	1	11/11/2018 20:42	WG1194920
Chlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Chlorodibromomethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Chloroethane	ND		0.00500	1	11/11/2018 20:42	WG1194920
Chloroform	ND		0.00500	1	11/11/2018 20:42	WG1194920
Chloromethane	ND		0.00250	1	11/11/2018 20:42	WG1194920
2-Chlorotoluene	ND		0.00100	1	11/11/2018 20:42	WG1194920
4-Chlorotoluene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	11/11/2018 20:42	WG1194920
1,2-Dibromoethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Dibromomethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2-Dichlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,3-Dichlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,4-Dichlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Dichlorodifluoromethane	ND		0.00500	1	11/11/2018 20:42	WG1194920
1,1-Dichloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2-Dichloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1-Dichloroethene	ND		0.00100	1	11/11/2018 20:42	WG1194920
cis-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 20:42	WG1194920
trans-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2-Dichloropropane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1-Dichloropropene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,3-Dichloropropane	ND		0.00100	1	11/11/2018 20:42	WG1194920
cis-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 20:42	WG1194920
trans-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 20:42	WG1194920
2,2-Dichloropropane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Di-isopropyl ether	ND		0.00100	1	11/11/2018 20:42	WG1194920
Ethylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Hexachloro-1,3-butadiene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Isopropylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
p-Isopropyltoluene	ND		0.00100	1	11/11/2018 20:42	WG1194920
2-Butanone (MEK)	ND		0.0100	1	11/11/2018 20:42	WG1194920
Methylene Chloride	ND		0.00500	1	11/11/2018 20:42	WG1194920
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	11/11/2018 20:42	WG1194920
Methyl tert-butyl ether	ND		0.00100	1	11/11/2018 20:42	WG1194920
Naphthalene	ND		0.00500	1	11/11/2018 20:42	WG1194920
n-Propylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Styrene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1,1,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1,2,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Tetrachloroethene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Toluene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2,3-Trichlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2,4-Trichlorobenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,1,2-Trichloroethane	ND		0.00100	1	11/11/2018 20:42	WG1194920
Trichloroethene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Trichlorofluoromethane	ND		0.00500	1	11/11/2018 20:42	WG1194920
1,2,3-Trichloropropane	ND		0.00250	1	11/11/2018 20:42	WG1194920
1,2,4-Trimethylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,2,3-Trimethylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
1,3,5-Trimethylbenzene	ND		0.00100	1	11/11/2018 20:42	WG1194920
Vinyl chloride	ND		0.00100	1	11/11/2018 20:42	WG1194920
Xylenes, Total	ND		0.00300	1	11/11/2018 20:42	WG1194920
(S) Toluene-d8	*108*		*80.0-120*		*11/11/2018 20:42*	WG1194920
(S) Dibromofluoromethane	*89.7*		*75.0-120*		*11/11/2018 20:42*	WG1194920
(S) 4-Bromofluorobenzene	*92.0*		*77.0-126*		*11/11/2018 20:42*	WG1194920

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Acenaphthene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Acenaphthylene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Benzo(a)anthracene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Benzo(a)pyrene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Benzo(b)fluoranthene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Benzo(g,h,i)perylene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Benzo(k)fluoranthene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Chrysene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Dibenz(a,h)anthracene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Fluoranthene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Fluorene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Naphthalene	ND		0.000250	1	11/15/2018 00:56	WG1196513
Phenanthrene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
Pyrene	ND		0.0000500	1	11/15/2018 00:56	WG1196513
(S) Nitrobenzene-d5	*85.8*		*31.0-160*		*11/15/2018 00:56*	WG1196513
(S) 2-Fluorobiphenyl	*86.3*		*48.0-148*		*11/15/2018 00:56*	WG1196513
(S) p-Terphenyl-d14	*93.2*		*37.0-146*		*11/15/2018 00:56*	WG1196513

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	11/11/2018 22:35	WG1195031
Acrolein	ND		0.0500	1	11/11/2018 22:35	WG1195031
Acrylonitrile	ND		0.0100	1	11/11/2018 22:35	WG1195031
Benzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Bromobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Bromodichloromethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Bromoform	ND		0.00100	1	11/11/2018 22:35	WG1195031
Bromomethane	ND		0.00500	1	11/11/2018 22:35	WG1195031
n-Butylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
sec-Butylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
tert-Butylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Carbon tetrachloride	ND		0.00100	1	11/11/2018 22:35	WG1195031
Chlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Chlorodibromomethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Chloroethane	ND		0.00500	1	11/11/2018 22:35	WG1195031
Chloroform	ND		0.00500	1	11/11/2018 22:35	WG1195031
Chloromethane	ND		0.00250	1	11/11/2018 22:35	WG1195031
2-Chlorotoluene	ND		0.00100	1	11/11/2018 22:35	WG1195031
4-Chlorotoluene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	11/11/2018 22:35	WG1195031
1,2-Dibromoethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Dibromomethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,3-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,4-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Dichlorodifluoromethane	ND		0.00500	1	11/11/2018 22:35	WG1195031
1,1-Dichloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2-Dichloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1-Dichloroethene	ND		0.00100	1	11/11/2018 22:35	WG1195031
cis-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 22:35	WG1195031
trans-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2-Dichloropropane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1-Dichloropropene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,3-Dichloropropane	ND		0.00100	1	11/11/2018 22:35	WG1195031
cis-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 22:35	WG1195031
trans-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 22:35	WG1195031
2,2-Dichloropropane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Di-isopropyl ether	ND		0.00100	1	11/11/2018 22:35	WG1195031
Ethylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Hexachloro-1,3-butadiene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Isopropylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
p-Isopropyltoluene	ND		0.00100	1	11/11/2018 22:35	WG1195031
2-Butanone (MEK)	ND		0.0100	1	11/11/2018 22:35	WG1195031
Methylene Chloride	ND		0.00500	1	11/11/2018 22:35	WG1195031
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	11/11/2018 22:35	WG1195031
Methyl tert-butyl ether	ND		0.00100	1	11/11/2018 22:35	WG1195031
Naphthalene	ND		0.00500	1	11/11/2018 22:35	WG1195031
n-Propylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Styrene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1,1,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1,2,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Tetrachloroethene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Toluene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2,3-Trichlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2,4-Trichlorobenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,1,2-Trichloroethane	ND		0.00100	1	11/11/2018 22:35	WG1195031
Trichloroethene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Trichlorofluoromethane	ND		0.00500	1	11/11/2018 22:35	WG1195031
1,2,3-Trichloropropane	ND		0.00250	1	11/11/2018 22:35	WG1195031
1,2,4-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,2,3-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
1,3,5-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:35	WG1195031
Vinyl chloride	ND		0.00100	1	11/11/2018 22:35	WG1195031
Xylenes, Total	ND		0.00300	1	11/11/2018 22:35	WG1195031
(S) Toluene-d8	*93.7*		*80.0-120*		*11/11/2018 22:35*	WG1195031
(S) Dibromofluoromethane	*105*		*75.0-120*		*11/11/2018 22:35*	WG1195031
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/11/2018 22:35*	WG1195031

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Acenaphthene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Acenaphthylene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Benzo(a)anthracene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Benzo(a)pyrene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Benzo(b)fluoranthene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Benzo(g,h,i)perylene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Benzo(k)fluoranthene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Chrysene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Dibenz(a,h)anthracene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Fluoranthene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Fluorene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Naphthalene	ND		0.000250	1	11/15/2018 01:18	WG1196513
Phenanthrene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
Pyrene	ND		0.0000500	1	11/15/2018 01:18	WG1196513
(S) Nitrobenzene-d5	*91.1*		*31.0-160*		*11/15/2018 01:18*	WG1196513
(S) 2-Fluorobiphenyl	*85.3*		*48.0-148*		*11/15/2018 01:18*	WG1196513
(S) p-Terphenyl-d14	*91.6*		*37.0-146*		*11/15/2018 01:18*	WG1196513

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	11/11/2018 22:54	WG1195031
Acrolein	ND		0.0500	1	11/11/2018 22:54	WG1195031
Acrylonitrile	ND		0.0100	1	11/11/2018 22:54	WG1195031
Benzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Bromobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Bromodichloromethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Bromoform	ND		0.00100	1	11/11/2018 22:54	WG1195031
Bromomethane	ND		0.00500	1	11/11/2018 22:54	WG1195031
n-Butylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
sec-Butylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
tert-Butylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Carbon tetrachloride	ND		0.00100	1	11/11/2018 22:54	WG1195031
Chlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Chlorodibromomethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Chloroethane	ND		0.00500	1	11/11/2018 22:54	WG1195031
Chloroform	ND		0.00500	1	11/11/2018 22:54	WG1195031
Chloromethane	ND		0.00250	1	11/11/2018 22:54	WG1195031
2-Chlorotoluene	ND		0.00100	1	11/11/2018 22:54	WG1195031
4-Chlorotoluene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	11/11/2018 22:54	WG1195031
1,2-Dibromoethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Dibromomethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,3-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,4-Dichlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Dichlorodifluoromethane	ND		0.00500	1	11/11/2018 22:54	WG1195031
1,1-Dichloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2-Dichloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1-Dichloroethene	ND		0.00100	1	11/11/2018 22:54	WG1195031
cis-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 22:54	WG1195031
trans-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2-Dichloropropane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1-Dichloropropene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,3-Dichloropropane	ND		0.00100	1	11/11/2018 22:54	WG1195031
cis-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 22:54	WG1195031
trans-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 22:54	WG1195031
2,2-Dichloropropane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Di-isopropyl ether	ND		0.00100	1	11/11/2018 22:54	WG1195031
Ethylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Hexachloro-1,3-butadiene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Isopropylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
p-Isopropyltoluene	ND		0.00100	1	11/11/2018 22:54	WG1195031
2-Butanone (MEK)	ND		0.0100	1	11/11/2018 22:54	WG1195031
Methylene Chloride	ND		0.00500	1	11/11/2018 22:54	WG1195031
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	11/11/2018 22:54	WG1195031
Methyl tert-butyl ether	ND		0.00100	1	11/11/2018 22:54	WG1195031
Naphthalene	ND		0.00500	1	11/11/2018 22:54	WG1195031
n-Propylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Styrene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1,1,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1,2,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Tetrachloroethene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Toluene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2,3-Trichlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2,4-Trichlorobenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,1,2-Trichloroethane	ND		0.00100	1	11/11/2018 22:54	WG1195031
Trichloroethene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Trichlorofluoromethane	ND		0.00500	1	11/11/2018 22:54	WG1195031
1,2,3-Trichloropropane	ND		0.00250	1	11/11/2018 22:54	WG1195031
1,2,4-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,2,3-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
1,3,5-Trimethylbenzene	ND		0.00100	1	11/11/2018 22:54	WG1195031
Vinyl chloride	ND		0.00100	1	11/11/2018 22:54	WG1195031
Xylenes, Total	ND		0.00300	1	11/11/2018 22:54	WG1195031
(S) Toluene-d8	*95.8*		*80.0-120*		*11/11/2018 22:54*	WG1195031
(S) Dibromofluoromethane	*107*		*75.0-120*		*11/11/2018 22:54*	WG1195031
(S) 4-Bromofluorobenzene	*104*		*77.0-126*		*11/11/2018 22:54*	WG1195031

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Acenaphthene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Acenaphthylene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Benzo(a)anthracene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Benzo(a)pyrene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Benzo(b)fluoranthene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Benzo(g,h,i)perylene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Benzo(k)fluoranthene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Chrysene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Dibenz(a,h)anthracene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Fluoranthene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Fluorene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Naphthalene	ND		0.000250	1	11/15/2018 04:47	WG1195406
Phenanthrene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
Pyrene	ND		0.0000500	1	11/15/2018 04:47	WG1195406
(S) Nitrobenzene-d5	*101*		*31.0-160*		*11/15/2018 04:47*	WG1195406
(S) 2-Fluorobiphenyl	*105*		*48.0-148*		*11/15/2018 04:47*	WG1195406
(S) p-Terphenyl-d14	*105*		*37.0-146*		*11/15/2018 04:47*	WG1195406

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Acetone	ND		0.0500	1	11/11/2018 23:13	WG1195031
Acrolein	ND		0.0500	1	11/11/2018 23:13	WG1195031
Acrylonitrile	ND		0.0100	1	11/11/2018 23:13	WG1195031
Benzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Bromobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Bromodichloromethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Bromoform	ND		0.00100	1	11/11/2018 23:13	WG1195031
Bromomethane	ND		0.00500	1	11/11/2018 23:13	WG1195031
n-Butylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
sec-Butylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
tert-Butylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Carbon tetrachloride	ND		0.00100	1	11/11/2018 23:13	WG1195031
Chlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Chlorodibromomethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Chloroethane	ND		0.00500	1	11/11/2018 23:13	WG1195031
Chloroform	ND		0.00500	1	11/11/2018 23:13	WG1195031
Chloromethane	ND		0.00250	1	11/11/2018 23:13	WG1195031
2-Chlorotoluene	ND		0.00100	1	11/11/2018 23:13	WG1195031
4-Chlorotoluene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2-Dibromo-3-Chloropropane	ND		0.00500	1	11/11/2018 23:13	WG1195031
1,2-Dibromoethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Dibromomethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2-Dichlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,3-Dichlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,4-Dichlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Dichlorodifluoromethane	ND		0.00500	1	11/11/2018 23:13	WG1195031
1,1-Dichloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2-Dichloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1-Dichloroethene	ND		0.00100	1	11/11/2018 23:13	WG1195031
cis-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 23:13	WG1195031
trans-1,2-Dichloroethene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2-Dichloropropane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1-Dichloropropene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,3-Dichloropropane	ND		0.00100	1	11/11/2018 23:13	WG1195031
cis-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 23:13	WG1195031
trans-1,3-Dichloropropene	ND		0.00100	1	11/11/2018 23:13	WG1195031
2,2-Dichloropropane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Di-isopropyl ether	ND		0.00100	1	11/11/2018 23:13	WG1195031
Ethylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Hexachloro-1,3-butadiene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Isopropylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
p-Isopropyltoluene	ND		0.00100	1	11/11/2018 23:13	WG1195031
2-Butanone (MEK)	ND		0.0100	1	11/11/2018 23:13	WG1195031
Methylene Chloride	ND		0.00500	1	11/11/2018 23:13	WG1195031
4-Methyl-2-pentanone (MIBK)	ND		0.0100	1	11/11/2018 23:13	WG1195031
Methyl tert-butyl ether	ND		0.00100	1	11/11/2018 23:13	WG1195031
Naphthalene	ND		0.00500	1	11/11/2018 23:13	WG1195031
n-Propylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Styrene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1,1,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1,2,2-Tetrachloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1,2-Trichlorotrifluoroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Tetrachloroethene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Toluene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2,3-Trichlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2,4-Trichlorobenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,1,2-Trichloroethane	ND		0.00100	1	11/11/2018 23:13	WG1195031
Trichloroethene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Trichlorofluoromethane	ND		0.00500	1	11/11/2018 23:13	WG1195031
1,2,3-Trichloropropane	ND		0.00250	1	11/11/2018 23:13	WG1195031
1,2,4-Trimethylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,2,3-Trimethylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
1,3,5-Trimethylbenzene	ND		0.00100	1	11/11/2018 23:13	WG1195031
Vinyl chloride	ND		0.00100	1	11/11/2018 23:13	WG1195031
Xylenes, Total	ND		0.00300	1	11/11/2018 23:13	WG1195031
(S) Toluene-d8	*93.4*		*80.0-120*		*11/11/2018 23:13*	WG1195031
(S) Dibromofluoromethane	*102*		*75.0-120*		*11/11/2018 23:13*	WG1195031
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*11/11/2018 23:13*	WG1195031

Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Acenaphthene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Acenaphthylene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Benzo(a)anthracene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Benzo(a)pyrene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Benzo(b)fluoranthene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Benzo(g,h,i)perylene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Benzo(k)fluoranthene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Chrysene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Dibenz(a,h)anthracene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Fluoranthene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Fluorene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Naphthalene	ND		0.000250	1	11/15/2018 05:07	WG1195406
Phenanthrene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
Pyrene	ND		0.0000500	1	11/15/2018 05:07	WG1195406
(S) Nitrobenzene-d5	*110*		*31.0-160*		*11/15/2018 05:07*	WG1195406
(S) 2-Fluorobiphenyl	*101*		*48.0-148*		*11/15/2018 05:07*	WG1195406
(S) p-Terphenyl-d14	*101*		*37.0-146*		*11/15/2018 05:07*	WG1195406

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	11/13/2018 16:26	WG1195461

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic	ND		0.0100	1	11/14/2018 13:50	WG1195057
Barium	0.0941		0.00500	1	11/14/2018 13:50	WG1195057
Cadmium	ND		0.00200	1	11/14/2018 13:50	WG1195057
Chromium	ND		0.0100	1	11/14/2018 13:50	WG1195057
Lead	ND		0.00500	1	11/14/2018 13:50	WG1195057
Selenium	ND		0.0100	1	11/14/2018 13:50	WG1195057
Silver	ND		0.00500	1	11/14/2018 13:50	WG1195057

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	11/13/2018 16:29	WG1195461

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic	ND		0.0100	1	11/14/2018 13:53	WG1195057
Barium	0.0255		0.00500	1	11/14/2018 13:53	WG1195057
Cadmium	ND		0.00200	1	11/14/2018 13:53	WG1195057
Chromium	ND		0.0100	1	11/14/2018 13:53	WG1195057
Lead	ND		0.00500	1	11/14/2018 13:53	WG1195057
Selenium	ND		0.0100	1	11/14/2018 13:53	WG1195057
Silver	ND		0.00500	1	11/14/2018 13:53	WG1195057

Method Blank (MB)

(MB) R3359523-1 11/13/18 16:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359523-2 11/13/18 16:04 • (LCSD) R3359523-3 11/13/18 16:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00261	0.00260	87.0	86.7	80.0-120			0.349	20

L1043223-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043223-09 11/13/18 16:09 • (MS) R3359523-4 11/13/18 16:11 • (MSD) R3359523-5 11/13/18 16:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00262	0.00263	87.5	87.6	1	75.0-125			0.171	20

Method Blank (MB)

(MB) R3359939-1 11/14/18 12:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.00650	0.0100
Barium	U		0.00170	0.00500
Cadmium	U		0.000700	0.00200
Chromium	U		0.00140	0.0100
Lead	U		0.00190	0.00500
Selenium	U		0.00740	0.0100
Silver	U		0.00280	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359939-2 11/14/18 12:42 • (LCSD) R3359939-3 11/14/18 12:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	0.972	0.985	97.2	98.5	80.0-120			1.25	20
Barium	1.00	0.987	1.00	98.7	100	80.0-120			1.39	20
Cadmium	1.00	0.962	0.975	96.2	97.5	80.0-120			1.25	20
Chromium	1.00	0.997	1.01	99.7	101	80.0-120			1.74	20
Lead	1.00	0.977	0.992	97.7	99.2	80.0-120			1.51	20
Selenium	1.00	0.963	0.977	96.3	97.7	80.0-120			1.46	20
Silver	0.200	0.192	0.195	96.0	97.7	80.0-120			1.69	20

L1043223-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043223-10 11/14/18 12:47 • (MS) R3359939-5 11/14/18 12:52 • (MSD) R3359939-6 11/14/18 12:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	ND	1.02	1.01	102	101	1	75.0-125			0.766	20
Barium	1.00	0.0329	1.01	1.01	97.5	97.3	1	75.0-125			0.256	20
Cadmium	1.00	ND	0.988	0.984	98.8	98.4	1	75.0-125			0.425	20
Chromium	1.00	ND	0.989	0.974	98.9	97.4	1	75.0-125			1.52	20
Lead	1.00	ND	0.979	0.965	97.7	96.3	1	75.0-125			1.39	20
Selenium	1.00	ND	1.02	1.02	102	102	1	75.0-125			0.401	20
Silver	0.200	ND	0.197	0.195	98.7	97.3	1	75.0-125			1.44	20

Method Blank (MB)

(MB) R3359516-4 11/11/18 14:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrolein	U		0.00887	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Di-isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100

Method Blank (MB)

(MB) R3359516-4 11/11/18 14:33

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,3-Trimethylbenzene	U		0.000321	0.00100
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) Dibromofluoromethane	*88.5*			*75.0-120*
(S) 4-Bromofluorobenzene	*96.3*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359516-1 11/11/18 13:15 • (LCSD) R3359516-2 11/11/18 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.131	0.134	105	107	19.0-160			2.02	27
Acrolein	0.125	0.172	0.182	138	146	10.0-160			5.68	26
Acrylonitrile	0.125	0.162	0.166	130	133	55.0-149			2.05	20
Benzene	0.0250	0.0227	0.0228	90.7	91.2	70.0-123			0.506	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359516-1 11/11/18 13:15 • (LCSD) R3359516-2 11/11/18 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	0.0250	0.0218	0.0220	87.2	87.9	73.0-121			0.809	20
Bromodichloromethane	0.0250	0.0235	0.0234	93.9	93.6	75.0-120			0.286	20
Bromoform	0.0250	0.0254	0.0261	102	104	68.0-132			2.64	20
Bromomethane	0.0250	0.0139	0.0142	55.4	56.8	10.0-160			2.50	25
n-Butylbenzene	0.0250	0.0240	0.0235	96.1	94.1	73.0-125			2.09	20
sec-Butylbenzene	0.0250	0.0252	0.0245	101	97.9	75.0-125			2.93	20
tert-Butylbenzene	0.0250	0.0249	0.0243	99.6	97.2	76.0-124			2.47	20
Carbon tetrachloride	0.0250	0.0226	0.0229	90.6	91.5	68.0-126			1.03	20
Chlorobenzene	0.0250	0.0262	0.0264	105	105	80.0-121			0.595	20
Chlorodibromomethane	0.0250	0.0250	0.0258	100	103	77.0-125			3.03	20
Chloroethane	0.0250	0.0262	0.0265	105	106	47.0-150			1.41	20
Chloroform	0.0250	0.0211	0.0210	84.4	83.8	73.0-120			0.709	20
Chloromethane	0.0250	0.0237	0.0241	94.9	96.5	41.0-142			1.69	20
2-Chlorotoluene	0.0250	0.0250	0.0245	100	97.9	76.0-123			2.08	20
4-Chlorotoluene	0.0250	0.0230	0.0229	92.2	91.5	75.0-122			0.684	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0241	0.0248	96.5	99.3	58.0-134			2.83	20
1,2-Dibromoethane	0.0250	0.0254	0.0264	102	106	80.0-122			3.72	20
Dibromomethane	0.0250	0.0235	0.0234	94.0	93.8	80.0-120			0.291	20
1,2-Dichlorobenzene	0.0250	0.0242	0.0238	96.8	95.2	79.0-121			1.66	20
1,3-Dichlorobenzene	0.0250	0.0241	0.0240	96.3	96.2	79.0-120			0.0958	20
1,4-Dichlorobenzene	0.0250	0.0225	0.0228	90.1	91.3	79.0-120			1.36	20
Dichlorodifluoromethane	0.0250	0.0207	0.0203	82.8	81.3	51.0-149			1.88	20
1,1-Dichloroethane	0.0250	0.0249	0.0250	99.6	99.9	70.0-126			0.275	20
1,2-Dichloroethane	0.0250	0.0230	0.0236	91.8	94.5	70.0-128			2.89	20
1,1-Dichloroethene	0.0250	0.0228	0.0226	91.4	90.6	71.0-124			0.863	20
cis-1,2-Dichloroethene	0.0250	0.0199	0.0209	79.5	83.7	73.0-120			5.19	20
trans-1,2-Dichloroethene	0.0250	0.0213	0.0212	85.2	84.8	73.0-120			0.553	20
1,2-Dichloropropane	0.0250	0.0276	0.0277	110	111	77.0-125			0.255	20
1,1-Dichloropropene	0.0250	0.0241	0.0240	96.4	96.0	74.0-126			0.407	20
1,3-Dichloropropane	0.0250	0.0263	0.0264	105	106	80.0-120			0.359	20
cis-1,3-Dichloropropene	0.0250	0.0263	0.0267	105	107	80.0-123			1.34	20
trans-1,3-Dichloropropene	0.0250	0.0267	0.0268	107	107	78.0-124			0.412	20
2,2-Dichloropropane	0.0250	0.0223	0.0220	89.3	87.8	58.0-130			1.65	20
Di-isopropyl ether	0.0250	0.0264	0.0266	106	106	58.0-138			0.788	20
Ethylbenzene	0.0250	0.0260	0.0257	104	103	79.0-123			1.34	20
Hexachloro-1,3-butadiene	0.0250	0.0256	0.0262	102	105	54.0-138			2.40	20
Isopropylbenzene	0.0250	0.0256	0.0255	102	102	76.0-127			0.219	20
p-Isopropyltoluene	0.0250	0.0247	0.0240	98.9	96.1	76.0-125			2.88	20
2-Butanone (MEK)	0.125	0.140	0.141	112	113	44.0-160			1.36	20
Methylene Chloride	0.0250	0.0197	0.0201	78.9	80.5	67.0-120			1.97	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359516-1 11/11/18 13:15 • (LCSD) R3359516-2 11/11/18 13:35

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	0.125	0.150	0.152	120	122	68.0-142			1.66	20
Methyl tert-butyl ether	0.0250	0.0216	0.0225	86.4	90.1	68.0-125			4.18	20
Naphthalene	0.0250	0.0153	0.0172	61.2	68.7	54.0-135			11.5	20
n-Propylbenzene	0.0250	0.0237	0.0233	94.9	93.1	77.0-124			1.92	20
Styrene	0.0250	0.0257	0.0245	103	98.0	73.0-130			4.69	20
1,1,1,2-Tetrachloroethane	0.0250	0.0269	0.0266	107	106	75.0-125			1.02	20
1,1,2,2-Tetrachloroethane	0.0250	0.0217	0.0215	86.7	86.1	65.0-130			0.670	20
Tetrachloroethene	0.0250	0.0266	0.0272	107	109	72.0-132			1.92	20
Toluene	0.0250	0.0258	0.0254	103	102	79.0-120			1.26	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0236	0.0231	94.4	92.4	69.0-132			2.13	20
1,2,3-Trichlorobenzene	0.0250	0.0197	0.0209	78.7	83.4	50.0-138			5.82	20
1,2,4-Trichlorobenzene	0.0250	0.0211	0.0212	84.3	84.7	57.0-137			0.518	20
1,1,1-Trichloroethane	0.0250	0.0229	0.0233	91.7	93.4	73.0-124			1.81	20
1,1,2-Trichloroethane	0.0250	0.0241	0.0240	96.6	95.9	80.0-120			0.722	20
Trichloroethene	0.0250	0.0274	0.0267	109	107	78.0-124			2.53	20
Trichlorofluoromethane	0.0250	0.0238	0.0240	95.2	95.8	59.0-147			0.684	20
1,2,3-Trichloropropane	0.0250	0.0255	0.0257	102	103	73.0-130			0.715	20
1,2,3-Trimethylbenzene	0.0250	0.0237	0.0236	94.9	94.4	77.0-120			0.542	20
1,2,4-Trimethylbenzene	0.0250	0.0244	0.0238	97.6	95.3	76.0-121			2.36	20
1,3,5-Trimethylbenzene	0.0250	0.0246	0.0244	98.2	97.6	76.0-122			0.610	20
Vinyl chloride	0.0250	0.0261	0.0264	104	106	67.0-131			1.17	20
Xylenes, Total	0.0750	0.0786	0.0783	105	104	79.0-123			0.382	20
(S) Toluene-d8				*105*	*105*	*80.0-120*				
(S) Dibromofluoromethane				*91.6*	*92.1*	*75.0-120*				
(S) 4-Bromofluorobenzene				*96.3*	*94.4*	*77.0-126*				

L1043223-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043223-10 11/11/18 21:01 • (MS) R3359516-5 11/11/18 21:21 • (MSD) R3359516-6 11/11/18 21:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	ND	0.133	0.139	106	111	1	10.0-160			4.45	35
Acrolein	0.125		0.208	0.224	166	179	1	10.0-160	J5	J5	7.63	39
Acrylonitrile	0.125	ND	0.173	0.171	139	136	1	21.0-160			1.64	32
Benzene	0.0250	ND	0.0237	0.0242	95.0	96.7	1	17.0-158			1.86	27
Bromobenzene	0.0250		0.0230	0.0232	92.1	92.9	1	30.0-149			0.871	28
Bromodichloromethane	0.0250	ND	0.0254	0.0258	102	103	1	31.0-150			1.45	27
Bromoform	0.0250	ND	0.0261	0.0262	104	105	1	29.0-150			0.359	29
Bromomethane	0.0250	ND	0.0196	0.0199	78.5	79.5	1	10.0-160			1.21	38

L1043223-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043223-10 11/11/18 21:01 • (MS) R3359516-5 11/11/18 21:21 • (MSD) R3359516-6 11/11/18 21:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
n-Butylbenzene	0.0250		0.0251	0.0261	100	104	1	31.0-150			3.85	30
sec-Butylbenzene	0.0250		0.0270	0.0273	108	109	1	33.0-155			1.05	29
tert-Butylbenzene	0.0250		0.0268	0.0273	107	109	1	34.0-153			1.84	28
Carbon tetrachloride	0.0250	ND	0.0258	0.0260	103	104	1	23.0-159			0.637	28
Chlorobenzene	0.0250	ND	0.0300	0.0288	120	115	1	33.0-152			4.02	27
Chlorodibromomethane	0.0250	ND	0.0283	0.0275	113	110	1	37.0-149			2.73	27
Chloroethane	0.0250	ND	0.0280	0.0291	112	116	1	10.0-160			3.91	30
Chloroform	0.0250	ND	0.0227	0.0232	90.8	92.8	1	29.0-154			2.18	28
Chloromethane	0.0250	ND	0.0267	0.0267	107	107	1	10.0-160			0.175	29
2-Chlorotoluene	0.0250		0.0269	0.0267	107	107	1	32.0-153			0.757	28
4-Chlorotoluene	0.0250		0.0246	0.0249	98.5	99.6	1	32.0-150			1.18	28
1,2-Dibromo-3-Chloropropane	0.0250	ND	0.0253	0.0283	101	113	1	22.0-151			11.3	34
1,2-Dibromoethane	0.0250	ND	0.0278	0.0278	111	111	1	34.0-147			0.123	27
Dibromomethane	0.0250	ND	0.0249	0.0247	99.7	98.7	1	30.0-151			1.02	27
1,2-Dichlorobenzene	0.0250	ND	0.0255	0.0258	102	103	1	34.0-149			0.957	28
1,3-Dichlorobenzene	0.0250		0.0251	0.0255	100	102	1	36.0-146			1.35	27
1,4-Dichlorobenzene	0.0250	ND	0.0234	0.0232	93.5	92.8	1	35.0-142			0.722	27
Dichlorodifluoromethane	0.0250	ND	0.0225	0.0230	89.8	92.0	1	10.0-160			2.44	29
1,1-Dichloroethane	0.0250	ND	0.0271	0.0273	109	109	1	25.0-158			0.655	27
1,2-Dichloroethane	0.0250	ND	0.0247	0.0251	98.7	100	1	29.0-151			1.55	27
1,1-Dichloroethene	0.0250	ND	0.0247	0.0244	98.7	97.5	1	11.0-160			1.22	29
cis-1,2-Dichloroethene	0.0250	ND	0.0213	0.0223	85.3	89.4	1	10.0-160			4.64	27
trans-1,2-Dichloroethene	0.0250	ND	0.0234	0.0225	93.4	89.9	1	17.0-153			3.83	27
1,2-Dichloropropane	0.0250	ND	0.0292	0.0300	117	120	1	30.0-156			2.41	27
1,1-Dichloropropene	0.0250		0.0258	0.0262	103	105	1	25.0-158			1.38	27
1,3-Dichloropropane	0.0250		0.0289	0.0279	116	112	1	38.0-147			3.59	27
cis-1,3-Dichloropropene	0.0250	ND	0.0287	0.0281	115	112	1	34.0-149			2.31	28
trans-1,3-Dichloropropene	0.0250	ND	0.0294	0.0283	118	113	1	32.0-149			3.74	28
2,2-Dichloropropane	0.0250		0.0239	0.0247	95.6	98.6	1	24.0-152			3.15	29
Di-isopropyl ether	0.0250		0.0287	0.0289	115	116	1	21.0-160			0.849	28
Ethylbenzene	0.0250	ND	0.0300	0.0296	120	119	1	30.0-155			1.35	27
Hexachloro-1,3-butadiene	0.0250		0.0275	0.0280	110	112	1	20.0-154			1.77	34
Isopropylbenzene	0.0250		0.0280	0.0282	112	113	1	28.0-157			0.734	27
p-Isopropyltoluene	0.0250		0.0263	0.0266	105	106	1	30.0-154			0.861	29
2-Butanone (MEK)	0.125	ND	0.152	0.159	121	127	1	10.0-160			4.74	32
Methylene Chloride	0.0250	ND	0.0202	0.0208	80.7	83.3	1	23.0-144			3.26	28
4-Methyl-2-pentanone (MIBK)	0.125	ND	0.177	0.175	141	140	1	29.0-160			1.19	29
Methyl tert-butyl ether	0.0250		0.0224	0.0227	89.5	91.0	1	28.0-150			1.65	29
Naphthalene	0.0250		0.0164	0.0182	65.7	72.9	1	12.0-156			10.5	35
n-Propylbenzene	0.0250		0.0259	0.0260	103	104	1	31.0-154			0.481	28

L1043223-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1043223-10 11/11/18 21:01 • (MS) R3359516-5 11/11/18 21:21 • (MSD) R3359516-6 11/11/18 21:40

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Styrene	0.0250	ND	0.0261	0.0260	104	104	1	33.0-155			0.0829	28
1,1,1,2-Tetrachloroethane	0.0250	ND	0.0310	0.0296	124	118	1	36.0-151			4.82	29
1,1,2,2-Tetrachloroethane	0.0250	ND	0.0234	0.0239	93.4	95.7	1	33.0-150			2.36	28
Tetrachloroethene	0.0250	ND	0.0323	0.0315	129	126	1	10.0-160			2.50	27
Toluene	0.0250	ND	0.0296	0.0289	118	116	1	26.0-154			2.25	28
1,1,2-Trichlorotrifluoroethane	0.0250		0.0255	0.0259	102	104	1	23.0-160			1.44	30
1,2,3-Trichlorobenzene	0.0250		0.0214	0.0230	85.6	92.1	1	17.0-150			7.31	36
1,2,4-Trichlorobenzene	0.0250		0.0220	0.0231	87.9	92.3	1	24.0-150			4.88	33
1,1,1-Trichloroethane	0.0250	ND	0.0261	0.0260	104	104	1	23.0-160			0.132	28
1,1,2-Trichloroethane	0.0250	ND	0.0261	0.0260	104	104	1	35.0-147			0.449	27
Trichloroethene	0.0250	ND	0.0282	0.0286	113	115	1	10.0-160			1.63	25
Trichlorofluoromethane	0.0250	ND	0.0280	0.0285	112	114	1	17.0-160			1.76	31
1,2,3-Trichloropropane	0.0250	ND	0.0274	0.0274	110	110	1	34.0-151			0.133	29
1,2,3-Trimethylbenzene	0.0250		0.0254	0.0251	102	100	1	32.0-149			1.30	28
1,2,4-Trimethylbenzene	0.0250		0.0263	0.0261	105	105	1	26.0-154			0.696	27
1,3,5-Trimethylbenzene	0.0250		0.0265	0.0264	106	105	1	28.0-153			0.425	27
Vinyl chloride	0.0250	ND	0.0288	0.0297	115	119	1	10.0-160			2.87	27
Xylenes, Total	0.0750	ND	0.0897	0.0874	120	117	1	29.0-154			2.60	28
(S) Toluene-d8					*113*	*110*		*80.0-120*				
(S) Dibromofluoromethane					*90.0*	*90.4*		*75.0-120*				
(S) 4-Bromofluorobenzene					*95.6*	*93.5*		*77.0-126*				

Method Blank (MB)

(MB) R3360746-3 11/11/18 19:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Acetone	U		0.0100	0.0500
Acrolein	U		0.00887	0.0500
Acrylonitrile	U		0.00187	0.0100
Benzene	U		0.000331	0.00100
Bromobenzene	U		0.000352	0.00100
Bromodichloromethane	U		0.000380	0.00100
Bromoform	U		0.000469	0.00100
Bromomethane	U		0.000866	0.00500
n-Butylbenzene	U		0.000361	0.00100
sec-Butylbenzene	U		0.000365	0.00100
tert-Butylbenzene	U		0.000399	0.00100
Carbon tetrachloride	U		0.000379	0.00100
Chlorobenzene	U		0.000348	0.00100
Chlorodibromomethane	U		0.000327	0.00100
Chloroethane	U		0.000453	0.00500
Chloroform	U		0.000324	0.00500
Chloromethane	U		0.000276	0.00250
2-Chlorotoluene	U		0.000375	0.00100
4-Chlorotoluene	U		0.000351	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00133	0.00500
1,2-Dibromoethane	U		0.000381	0.00100
Dibromomethane	U		0.000346	0.00100
1,2-Dichlorobenzene	U		0.000349	0.00100
1,3-Dichlorobenzene	U		0.000220	0.00100
1,4-Dichlorobenzene	U		0.000274	0.00100
Dichlorodifluoromethane	U		0.000551	0.00500
1,1-Dichloroethane	U		0.000259	0.00100
1,2-Dichloroethane	U		0.000361	0.00100
1,1-Dichloroethene	U		0.000398	0.00100
cis-1,2-Dichloroethene	U		0.000260	0.00100
trans-1,2-Dichloroethene	U		0.000396	0.00100
1,2-Dichloropropane	U		0.000306	0.00100
1,1-Dichloropropene	U		0.000352	0.00100
1,3-Dichloropropane	U		0.000366	0.00100
cis-1,3-Dichloropropene	U		0.000418	0.00100
trans-1,3-Dichloropropene	U		0.000419	0.00100
2,2-Dichloropropane	U		0.000321	0.00100
Di-isopropyl ether	U		0.000320	0.00100
Ethylbenzene	U		0.000384	0.00100
Hexachloro-1,3-butadiene	U		0.000256	0.00100

Method Blank (MB)

(MB) R3360746-3 11/11/18 19:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Isopropylbenzene	U		0.000326	0.00100
p-Isopropyltoluene	U		0.000350	0.00100
2-Butanone (MEK)	U		0.00393	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00214	0.0100
Methyl tert-butyl ether	U		0.000367	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000349	0.00100
Styrene	U		0.000307	0.00100
1,1,1,2-Tetrachloroethane	U		0.000385	0.00100
1,1,2,2-Tetrachloroethane	U		0.000130	0.00100
1,1,2-Trichlorotrifluoroethane	U		0.000303	0.00100
Tetrachloroethene	U		0.000372	0.00100
Toluene	U		0.000412	0.00100
1,2,3-Trichlorobenzene	U		0.000230	0.00100
1,2,4-Trichlorobenzene	U		0.000355	0.00100
1,1,1-Trichloroethane	U		0.000319	0.00100
1,1,2-Trichloroethane	U		0.000383	0.00100
Trichloroethene	U		0.000398	0.00100
Trichlorofluoromethane	U		0.00120	0.00500
1,2,3-Trichloropropane	U		0.000807	0.00250
1,2,4-Trimethylbenzene	U		0.000373	0.00100
1,2,3-Trimethylbenzene	U		0.000321	0.00100
1,3,5-Trimethylbenzene	U		0.000387	0.00100
Vinyl chloride	U		0.000259	0.00100
Xylenes, Total	U		0.00106	0.00300
(S) Toluene-d8	*93.7*			*80.0-120*
(S) Dibromofluoromethane	*102*			*75.0-120*
(S) 4-Bromofluorobenzene	*106*			*77.0-126*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360746-1 11/11/18 18:29 • (LCSD) R3360746-2 11/11/18 18:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.162	0.150	130	120	19.0-160			7.97	27
Acrolein	0.125	0.183	0.175	147	140	10.0-160			4.44	26
Acrylonitrile	0.125	0.144	0.138	115	111	55.0-149			4.16	20
Benzene	0.0250	0.0273	0.0268	109	107	70.0-123			1.96	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360746-1 11/11/18 18:29 • (LCSD) R3360746-2 11/11/18 18:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	0.0250	0.0235	0.0257	94.1	103	73.0-121			8.92	20
Bromodichloromethane	0.0250	0.0257	0.0260	103	104	75.0-120			1.16	20
Bromoform	0.0250	0.0243	0.0258	97.2	103	68.0-132			5.98	20
Bromomethane	0.0250	0.0295	0.0297	118	119	10.0-160			0.549	25
n-Butylbenzene	0.0250	0.0255	0.0273	102	109	73.0-125			6.62	20
sec-Butylbenzene	0.0250	0.0236	0.0247	94.3	98.8	75.0-125			4.69	20
tert-Butylbenzene	0.0250	0.0243	0.0267	97.2	107	76.0-124			9.60	20
Carbon tetrachloride	0.0250	0.0275	0.0279	110	111	68.0-126			1.52	20
Chlorobenzene	0.0250	0.0258	0.0256	103	102	80.0-121			0.927	20
Chlorodibromomethane	0.0250	0.0263	0.0253	105	101	77.0-125			3.66	20
Chloroethane	0.0250	0.0308	0.0305	123	122	47.0-150			1.15	20
Chloroform	0.0250	0.0256	0.0251	102	100	73.0-120			2.20	20
Chloromethane	0.0250	0.0312	0.0331	125	132	41.0-142			5.81	20
2-Chlorotoluene	0.0250	0.0269	0.0287	107	115	76.0-123			6.56	20
4-Chlorotoluene	0.0250	0.0264	0.0273	105	109	75.0-122			3.48	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0246	0.0257	98.5	103	58.0-134			4.19	20
1,2-Dibromoethane	0.0250	0.0262	0.0253	105	101	80.0-122			3.71	20
Dibromomethane	0.0250	0.0263	0.0265	105	106	80.0-120			0.655	20
1,2-Dichlorobenzene	0.0250	0.0256	0.0278	102	111	79.0-121			8.27	20
1,3-Dichlorobenzene	0.0250	0.0256	0.0271	102	109	79.0-120			5.76	20
1,4-Dichlorobenzene	0.0250	0.0234	0.0239	93.7	95.5	79.0-120			1.87	20
Dichlorodifluoromethane	0.0250	0.0339	0.0323	135	129	51.0-149			4.72	20
1,1-Dichloroethane	0.0250	0.0279	0.0269	111	108	70.0-126			3.49	20
1,2-Dichloroethane	0.0250	0.0294	0.0280	118	112	70.0-128			5.21	20
1,1-Dichloroethene	0.0250	0.0274	0.0265	110	106	71.0-124			3.45	20
cis-1,2-Dichloroethene	0.0250	0.0267	0.0262	107	105	73.0-120			1.95	20
trans-1,2-Dichloroethene	0.0250	0.0279	0.0268	111	107	73.0-120			3.89	20
1,2-Dichloropropane	0.0250	0.0274	0.0275	110	110	77.0-125			0.326	20
1,1-Dichloropropene	0.0250	0.0292	0.0285	117	114	74.0-126			2.39	20
1,3-Dichloropropane	0.0250	0.0266	0.0244	107	97.8	80.0-120			8.62	20
cis-1,3-Dichloropropene	0.0250	0.0275	0.0268	110	107	80.0-123			2.66	20
trans-1,3-Dichloropropene	0.0250	0.0268	0.0260	107	104	78.0-124			3.40	20
2,2-Dichloropropane	0.0250	0.0291	0.0265	117	106	58.0-130			9.58	20
Di-isopropyl ether	0.0250	0.0281	0.0274	113	110	58.0-138			2.50	20
Ethylbenzene	0.0250	0.0253	0.0248	101	99.2	79.0-123			1.93	20
Hexachloro-1,3-butadiene	0.0250	0.0217	0.0240	86.6	96.0	54.0-138			10.3	20
Isopropylbenzene	0.0250	0.0242	0.0263	97.0	105	76.0-127			8.23	20
p-Isopropyltoluene	0.0250	0.0259	0.0265	104	106	76.0-125			2.35	20
2-Butanone (MEK)	0.125	0.155	0.147	124	118	44.0-160			5.31	20
Methylene Chloride	0.0250	0.0261	0.0246	104	98.3	67.0-120			5.96	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360746-1 11/11/18 18:29 • (LCSD) R3360746-2 11/11/18 18:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	0.125	0.140	0.131	112	105	68.0-142			6.54	20
Methyl tert-butyl ether	0.0250	0.0274	0.0259	110	104	68.0-125			5.66	20
Naphthalene	0.0250	0.0229	0.0240	91.4	95.9	54.0-135			4.76	20
n-Propylbenzene	0.0250	0.0259	0.0279	104	112	77.0-124			7.53	20
Styrene	0.0250	0.0270	0.0280	108	112	73.0-130			3.68	20
1,1,1,2-Tetrachloroethane	0.0250	0.0264	0.0250	105	99.9	75.0-125			5.41	20
1,1,2,2-Tetrachloroethane	0.0250	0.0244	0.0256	97.6	102	65.0-130			4.66	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0290	0.0279	116	111	69.0-132			4.11	20
Tetrachloroethene	0.0250	0.0263	0.0254	105	102	72.0-132			3.50	20
Toluene	0.0250	0.0246	0.0241	98.3	96.6	79.0-120			1.73	20
1,2,3-Trichlorobenzene	0.0250	0.0246	0.0261	98.2	104	50.0-138			6.09	20
1,2,4-Trichlorobenzene	0.0250	0.0227	0.0244	90.9	97.6	57.0-137			7.13	20
1,1,1-Trichloroethane	0.0250	0.0281	0.0277	113	111	73.0-124			1.58	20
1,1,2-Trichloroethane	0.0250	0.0259	0.0241	104	96.6	80.0-120			6.91	20
Trichloroethene	0.0250	0.0272	0.0276	109	110	78.0-124			1.40	20
Trichlorofluoromethane	0.0250	0.0322	0.0311	129	124	59.0-147			3.45	20
1,2,3-Trichloropropane	0.0250	0.0260	0.0269	104	107	73.0-130			3.36	20
1,2,4-Trimethylbenzene	0.0250	0.0251	0.0260	100	104	76.0-121			3.78	20
1,2,3-Trimethylbenzene	0.0250	0.0259	0.0262	104	105	77.0-120			1.04	20
1,3,5-Trimethylbenzene	0.0250	0.0244	0.0256	97.7	102	76.0-122			4.69	20
Vinyl chloride	0.0250	0.0297	0.0292	119	117	67.0-131			1.66	20
Xylenes, Total	0.0750	0.0779	0.0748	104	99.7	79.0-123			4.06	20
(S) Toluene-d8				*95.4*	*92.4*	*80.0-120*				
(S) Dibromofluoromethane				*103*	*102*	*75.0-120*				
(S) 4-Bromofluorobenzene				*96.9*	*103*	*77.0-126*				

Method Blank (MB)

(MB) R3359998-3 11/14/18 22:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000140	0.0000500
Acenaphthene	U		0.0000100	0.0000500
Acenaphthylene	U		0.0000120	0.0000500
Benzo(a)anthracene	U		0.00000410	0.0000500
Benzo(a)pyrene	U		0.0000116	0.0000500
Benzo(b)fluoranthene	U		0.00000212	0.0000500
Benzo(g,h,i)perylene	U		0.00000227	0.0000500
Benzo(k)fluoranthene	U		0.0000136	0.0000500
Chrysene	U		0.0000108	0.0000500
Dibenz(a,h)anthracene	U		0.00000396	0.0000500
Fluoranthene	U		0.0000157	0.0000500
Fluorene	U		0.00000850	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500
Naphthalene	U		0.0000198	0.000250
Phenanthrene	U		0.00000820	0.0000500
Pyrene	U		0.0000117	0.0000500
(S) Nitrobenzene-d5	*102*			*31.0-160*
(S) 2-Fluorobiphenyl	*99.0*			*48.0-148*
(S) p-Terphenyl-d14	*97.0*			*37.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359998-1 11/14/18 21:31 • (LCSD) R3359998-2 11/14/18 21:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00197	0.00197	98.5	98.5	67.0-150			0.000	20
Acenaphthene	0.00200	0.00186	0.00186	93.0	93.0	65.0-138			0.000	20
Acenaphthylene	0.00200	0.00197	0.00194	98.5	97.0	66.0-140			1.53	20
Benzo(a)anthracene	0.00200	0.00186	0.00184	93.0	92.0	61.0-140			1.08	20
Benzo(a)pyrene	0.00200	0.00192	0.00191	96.0	95.5	60.0-143			0.522	20
Benzo(b)fluoranthene	0.00200	0.00182	0.00176	91.0	88.0	58.0-141			3.35	20
Benzo(g,h,i)perylene	0.00200	0.00176	0.00170	88.0	85.0	52.0-153			3.47	20
Benzo(k)fluoranthene	0.00200	0.00189	0.00197	94.5	98.5	58.0-148			4.15	20
Chrysene	0.00200	0.00191	0.00189	95.5	94.5	64.0-144			1.05	20
Dibenz(a,h)anthracene	0.00200	0.00180	0.00174	90.0	87.0	52.0-155			3.39	20
Fluoranthene	0.00200	0.00206	0.00213	103	106	69.0-153			3.34	20
Fluorene	0.00200	0.00188	0.00187	94.0	93.5	64.0-136			0.533	20
Indeno(1,2,3-cd)pyrene	0.00200	0.00183	0.00180	91.5	90.0	54.0-153			1.65	20
Naphthalene	0.00200	0.00180	0.00180	90.0	90.0	61.0-137			0.000	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3359998-1 11/14/18 21:31 • (LCSD) R3359998-2 11/14/18 21:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenanthrene	0.00200	0.00185	0.00186	92.5	93.0	62.0-137			0.539	20
Pyrene	0.00200	0.00180	0.00180	90.0	90.0	60.0-142			0.000	20
(S) Nitrobenzene-d5				*99.0*	*96.0*	*31.0-160*				
(S) 2-Fluorobiphenyl				*96.0*	*91.5*	*48.0-148*				
(S) p-Terphenyl-d14				*96.0*	*95.5*	*37.0-146*				

Method Blank (MB)

(MB) R3360021-3 11/14/18 22:24

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Anthracene	U		0.0000140	0.0000500
Acenaphthene	U		0.0000100	0.0000500
Acenaphthylene	U		0.0000120	0.0000500
Benzo(a)anthracene	U		0.00000410	0.0000500
Benzo(a)pyrene	U		0.0000116	0.0000500
Benzo(b)fluoranthene	U		0.00000212	0.0000500
Benzo(g,h,i)perylene	U		0.00000227	0.0000500
Benzo(k)fluoranthene	U		0.0000136	0.0000500
Chrysene	U		0.0000108	0.0000500
Dibenz(a,h)anthracene	U		0.00000396	0.0000500
Fluoranthene	U		0.0000157	0.0000500
Fluorene	U		0.00000850	0.0000500
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500
Naphthalene	U		0.0000198	0.000250
Phenanthrene	U		0.00000820	0.0000500
Pyrene	U		0.0000117	0.0000500
(S) Nitrobenzene-d5	*89.5*			*31.0-160*
(S) 2-Fluorobiphenyl	*82.5*			*48.0-148*
(S) p-Terphenyl-d14	*91.5*			*37.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360021-1 11/14/18 21:40 • (LCSD) R3360021-2 11/14/18 22:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00188	0.00179	94.0	89.5	67.0-150			4.90	20
Acenaphthene	0.00200	0.00160	0.00154	80.0	77.0	65.0-138			3.82	20
Acenaphthylene	0.00200	0.00166	0.00161	83.0	80.5	66.0-140			3.06	20
Benzo(a)anthracene	0.00200	0.00158	0.00151	79.0	75.5	61.0-140			4.53	20
Benzo(a)pyrene	0.00200	0.00180	0.00173	90.0	86.5	60.0-143			3.97	20
Benzo(b)fluoranthene	0.00200	0.00170	0.00162	85.0	81.0	58.0-141			4.82	20
Benzo(g,h,i)perylene	0.00200	0.00177	0.00167	88.5	83.5	52.0-153			5.81	20
Benzo(k)fluoranthene	0.00200	0.00184	0.00177	92.0	88.5	58.0-148			3.88	20
Chrysene	0.00200	0.00172	0.00166	86.0	83.0	64.0-144			3.55	20
Dibenz(a,h)anthracene	0.00200	0.00173	0.00164	86.5	82.0	52.0-155			5.34	20
Fluoranthene	0.00200	0.00194	0.00186	97.0	93.0	69.0-153			4.21	20
Fluorene	0.00200	0.00152	0.00146	76.0	73.0	64.0-136			4.03	20
Indeno(1,2,3-cd)pyrene	0.00200	0.00179	0.00170	89.5	85.0	54.0-153			5.16	20
Naphthalene	0.00200	0.00164	0.00158	82.0	79.0	61.0-137			3.73	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3360021-1 11/14/18 21:40 • (LCSD) R3360021-2 11/14/18 22:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenanthrene	0.00200	0.00163	0.00155	81.5	77.5	62.0-137			5.03	20
Pyrene	0.00200	0.00164	0.00156	82.0	78.0	60.0-142			5.00	20
(S) Nitrobenzene-d5				*91.5*	*89.5*	*31.0-160*				
(S) 2-Fluorobiphenyl				*81.5*	*78.0*	*48.0-148*				
(S) p-Terphenyl-d14				*95.5*	*89.5*	*37.0-146*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

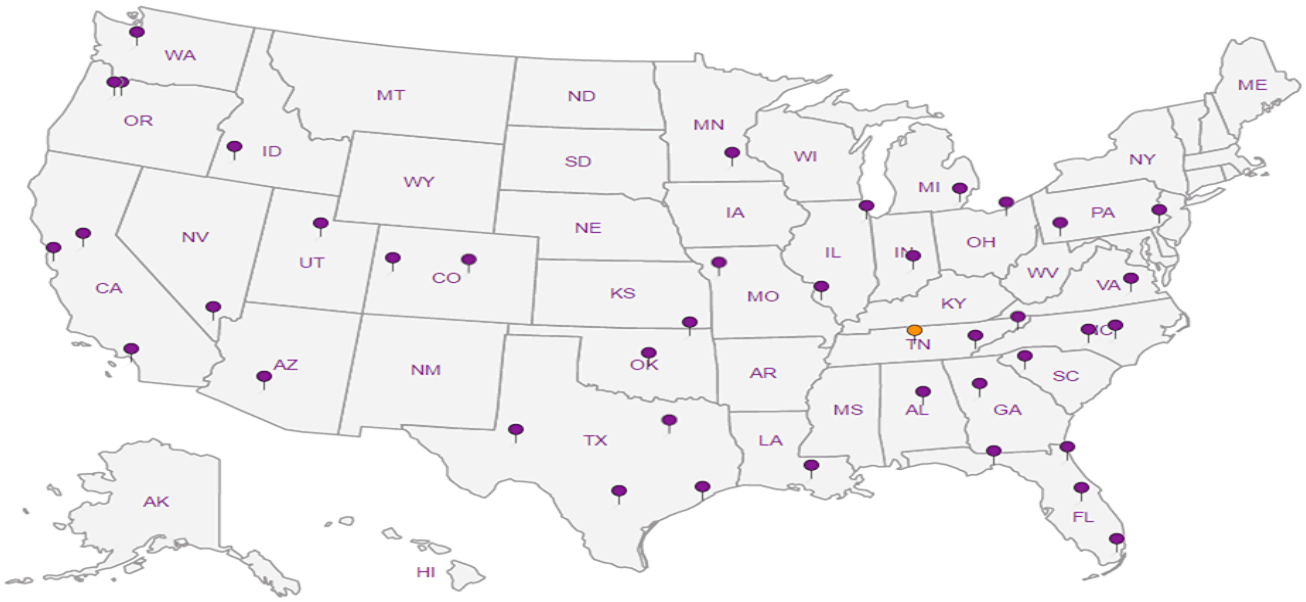
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



S&ME Inc. - Hixson TN.

4291 HWY 58 Suite 101
Chattanooga, TN 37416

Billing Information:
Accounts Payable
4291 HWY 58 Ste.101
Chattanooga, TN 37416

Pres Chk

Report to: Jbaywood & Phubbul

Email To: Phubbul@sumeinc.com
Jbaywood@sumeinc.com

Project Description: Former Harriet Tubman Property

City/State Collected: Chattanooga TN

Phone: 423-499-0957
Fax:

Client Project # 4181-18-046 PH 431

Lab Project #

Collected by (print): Phil Hubbul

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Standard 5-day turn

Chain of Custody Page 1 of 2

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858

11-124

L# D247

Acctnum: SMEHTN
Template: L1043254
Prelogin:
TSR: 690 - Tom Mellette
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	PAH SIM 40mL Amb No Preserv	RCRA8+PAHSIM 4oz clr No-P	RCRA8 250mL HDPE - HNO3	V8260 40 mL Amb - HCl	V8260 40mL Amb/MeOH 5ml/5yr	Remarks	Sample # (lab only)
B-1	grab	SS	17.5-19.8	11-9-18	10:58am	2		X			X	Hold	
B-2		SS	15-17.8	11-9-18	11:04am	2		X			X	Hold	
B-3		SS	17.5-18.2	11-9-18	11:10am	2		X			X	Hold	
B-4		SS	17.5-20	11-9-18	11:16am	2		X			X	Hold	
B-1		GW	NA	11-8-18	4:28pm	5	X			X			-01
B-2		GW		11-8-18	12:35pm	5	X			X			-02
B-3		GW		11-8-18	2:00pm	5	X			X			-03
B-4		GW		11-8-18	3:22pm	5	X			X			-04
B-1		GW		11-9-18	8:38am	1			X				-05
B-2		GW		11-9-18	9:13am	1			X			Hold	

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier __ _____

Tracking # 4686 6469 3969

Sample Receipt Checklist
COC Seal Present/Intact: __NP X Y __N
COC Signed/Accurate: X Y __N
Bottles arrive intact: X Y __N
Correct bottles used: X Y __N
Sufficient volume sent: X Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11-9-18	2:30pm	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Malik Tisdale

Trip Blank Received: Yes (No) HCL / MeoH TBR
1

Temp: °C Bottles Received: 0.4-0.1,0.2 32+TB

Date: 11/10 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

S&ME Inc. - Hixson TN.

4291 HWY 58 Suite 101
Chattanooga, TN 37416

Billing Information:
Accounts Payable
4291 HWY 58 Ste.101
Chattanooga, TN 37416

Report to: Jheywood & PHubbard

Email To: PHubbard@sricinc.com
Jheywood@sricinc.com

Project Description: Former Harriet Tubman Property

City/State Collected: Chattanooga TN

Phone: 423-499-0957
Fax:

Client Project # 4181-18-046 PH 431

Lab Project #

Collected by (print): P Hubbard

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Standard 5 day turn

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	RCRA8 250mL HDPE - HN03	Remarks	Sample # (lab only)
B-3	grab	GW	NA	11-9-18	9:22am	1	X	X		-06
B-4	grab	GW	NA	11-9-18	10:00am	1	X	X	Hold	

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1043254

Table #

Acctnum: SMEHTN

Template:

Prelogin:

TSR: 690 - Tom Mellette

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier

Tracking # 4646 6469 3969

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11-9-18	2:30pm	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received: 0.4-1.2=2.2 32 TB

Date: 11-10-18 Time: 0845

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 19, 2018

S&ME Inc. - Hixson TN.

Sample Delivery Group:	L1044666
Samples Received:	11/15/2018
Project Number:	4181-18-046 PH 431
Description:	Former Harriet Tubman Homes

Report To: Johanna Heywood / Paul Hubbard
4291 HWY 58 Suite 101
Chattanooga, TN 37416

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SG-1 L1044666-01 Air

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/14/18 10:48	11/15/18 10:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1198335	1	11/17/18 20:14	11/17/18 20:14	MBF

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	8.23	19.6		1	WG1198335
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1198335
Benzene	71-43-2	78.10	0.200	0.639	0.528	1.69		1	WG1198335
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1198335
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1198335
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1198335
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1198335
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1198335
Carbon disulfide	75-15-0	76.10	0.200	0.622	0.616	1.92		1	WG1198335
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1198335
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1198335
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1198335
Chloroform	67-66-3	119	0.200	0.973	0.279	1.36		1	WG1198335
Chloromethane	74-87-3	50.50	0.200	0.413	ND	ND		1	WG1198335
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1198335
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1198335
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1198335
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1198335
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1198335
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1198335
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1198335
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1198335
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1198335
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1198335
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1198335
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1198335
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1198335
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1198335
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1198335
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1198335
Ethanol	64-17-5	46.10	0.630	1.19	7.71	14.5		1	WG1198335
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1198335
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1198335
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.224	1.26		1	WG1198335
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.262	1.30		1	WG1198335
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1198335
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1198335
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1198335
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1198335
n-Hexane	110-54-3	86.20	0.200	0.705	0.507	1.79		1	WG1198335
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1198335
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1198335
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1198335
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	1.61	4.76		1	WG1198335
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1198335
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1198335
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1198335
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1198335
2-Propanol	67-63-0	60.10	1.25	3.07	1.75	4.31		1	WG1198335
Propene	115-07-1	42.10	0.400	0.689	2.44	4.21		1	WG1198335
Styrene	100-42-5	104	0.200	0.851	0.219	0.930		1	WG1198335
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1198335
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1198335
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1198335
Toluene	108-88-3	92.10	0.200	0.753	0.614	2.31		1	WG1198335
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1198335

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1198335
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1198335
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1198335
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	0.244	1.20		1	WG1198335
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1198335
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1198335
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1198335
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1198335
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1198335
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1198335
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1198335
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*90.6*				WG1198335

Method Blank (MB)

(MB) R3361191-1 11/17/18 09:55

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3361191-1 11/17/18 09:55

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*91.1*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361191-2 11/17/18 10:35 • (LCSD) R3361191-3 11/17/18 11:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	2.89	3.01	77.2	80.4	55.0-148			4.04	25
Propene	3.75	2.61	2.61	69.7	69.5	64.0-144			0.228	25
Dichlorodifluoromethane	3.75	3.54	3.53	94.4	94.2	64.0-139			0.205	25
1,2-Dichlorotetrafluoroethane	3.75	3.99	4.02	106	107	70.0-130			0.794	25
Chloromethane	3.75	3.03	3.05	80.9	81.5	70.0-130			0.746	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361191-2 11/17/18 10:35 • (LCSD) R3361191-3 11/17/18 11:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.39	3.45	90.3	91.9	70.0-130			1.78	25
1,3-Butadiene	3.75	2.69	2.66	71.8	70.9	70.0-130			1.38	25
Bromomethane	3.75	3.68	3.73	98.2	99.5	70.0-130			1.36	25
Chloroethane	3.75	3.65	3.39	97.4	90.4	70.0-130			7.47	25
Trichlorofluoromethane	3.75	3.83	3.68	102	98.1	70.0-130			3.90	25
1,1,2-Trichlorotrifluoroethane	3.75	3.85	3.87	103	103	70.0-130			0.433	25
1,1-Dichloroethene	3.75	3.36	3.46	89.7	92.3	70.0-130			2.82	25
1,1-Dichloroethane	3.75	3.39	3.45	90.5	92.0	70.0-130			1.65	25
Acetone	3.75	3.29	3.34	87.7	89.1	70.0-130			1.60	25
2-Propanol	3.75	2.91	3.01	77.5	80.2	70.0-139			3.38	25
Carbon disulfide	3.75	3.68	3.67	98.0	97.9	70.0-130			0.188	25
Methylene Chloride	3.75	2.85	2.88	75.9	76.8	70.0-130			1.24	25
MTBE	3.75	3.45	3.50	92.1	93.4	70.0-130			1.40	25
trans-1,2-Dichloroethene	3.75	3.32	3.38	88.6	90.2	70.0-130			1.79	25
n-Hexane	3.75	3.30	3.36	88.0	89.7	70.0-130			1.84	25
Vinyl acetate	3.75	2.86	2.93	76.3	78.3	70.0-130			2.55	25
Methyl Ethyl Ketone	3.75	3.63	3.68	96.7	98.0	70.0-130			1.37	25
cis-1,2-Dichloroethene	3.75	3.79	3.87	101	103	70.0-130			2.07	25
Chloroform	3.75	3.57	3.59	95.3	95.8	70.0-130			0.465	25
Cyclohexane	3.75	3.68	3.74	98.0	99.6	70.0-130			1.63	25
1,1,1-Trichloroethane	3.75	3.67	3.67	98.0	97.9	70.0-130			0.0576	25
Carbon tetrachloride	3.75	3.79	3.86	101	103	70.0-130			1.58	25
Benzene	3.75	3.66	3.74	97.7	99.7	70.0-130			2.05	25
1,2-Dichloroethane	3.75	3.40	3.47	90.8	92.6	70.0-130			1.93	25
Heptane	3.75	2.93	2.97	78.3	79.2	70.0-130			1.22	25
Trichloroethylene	3.75	3.77	3.88	101	103	70.0-130			2.74	25
1,2-Dichloropropane	3.75	3.50	3.60	93.2	96.1	70.0-130			2.98	25
1,4-Dioxane	3.75	3.81	3.90	102	104	70.0-140			2.22	25
Bromodichloromethane	3.75	3.67	3.79	97.8	101	70.0-130			3.26	25
cis-1,3-Dichloropropene	3.75	3.65	3.75	97.3	100	70.0-130			2.84	25
4-Methyl-2-pentanone (MIBK)	3.75	2.89	2.99	77.1	79.8	70.0-139			3.50	25
Toluene	3.75	3.78	3.90	101	104	70.0-130			3.02	25
trans-1,3-Dichloropropene	3.75	3.66	3.82	97.5	102	70.0-130			4.47	25
1,1,2-Trichloroethane	3.75	3.85	4.00	103	107	70.0-130			3.85	25
Tetrachloroethylene	3.75	4.31	4.39	115	117	70.0-130			2.04	25
Methyl Butyl Ketone	3.75	3.01	3.12	80.3	83.3	70.0-149			3.59	25
Dibromochloromethane	3.75	4.05	4.17	108	111	70.0-130			3.06	25
1,2-Dibromoethane	3.75	3.97	4.08	106	109	70.0-130			2.76	25
Chlorobenzene	3.75	3.94	4.05	105	108	70.0-130			2.76	25
Ethylbenzene	3.75	3.82	3.87	102	103	70.0-130			1.35	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361191-2 11/17/18 10:35 • (LCSD) R3361191-3 11/17/18 11:16

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.59	7.68	101	102	70.0-130			1.12	25
o-Xylene	3.75	3.85	3.89	103	104	70.0-130			1.04	25
Styrene	3.75	4.09	4.11	109	110	70.0-130			0.334	25
Bromoform	3.75	4.51	4.51	120	120	70.0-130			0.00534	25
1,1,2,2-Tetrachloroethane	3.75	3.69	3.68	98.3	98.2	70.0-130			0.119	25
4-Ethyltoluene	3.75	3.84	3.81	102	102	70.0-130			0.571	25
1,3,5-Trimethylbenzene	3.75	3.78	3.81	101	102	70.0-130			1.01	25
1,2,4-Trimethylbenzene	3.75	3.76	3.77	100	101	70.0-130			0.417	25
1,3-Dichlorobenzene	3.75	4.04	4.09	108	109	70.0-130			1.26	25
1,4-Dichlorobenzene	3.75	4.05	4.05	108	108	70.0-130			0.0592	25
Benzyl Chloride	3.75	3.73	3.81	99.4	101	70.0-152			2.12	25
1,2-Dichlorobenzene	3.75	3.98	4.03	106	107	70.0-130			1.30	25
1,2,4-Trichlorobenzene	3.75	4.62	4.57	123	122	70.0-160			1.11	25
Hexachloro-1,3-butadiene	3.75	4.43	4.38	118	117	70.0-151			1.20	25
Naphthalene	3.75	4.30	4.31	115	115	70.0-159			0.186	25
Allyl Chloride	3.75	3.53	4.03	94.1	107	70.0-130			13.3	25
2-Chlorotoluene	3.75	4.02	4.03	107	108	70.0-130			0.291	25
Methyl Methacrylate	3.75	3.58	3.68	95.6	98.2	70.0-130			2.69	25
Tetrahydrofuran	3.75	2.74	2.79	73.1	74.4	70.0-137			1.86	25
2,2,4-Trimethylpentane	3.75	3.29	3.34	87.8	89.2	70.0-130			1.56	25
Vinyl Bromide	3.75	4.07	3.83	109	102	70.0-130			6.24	25
Isopropylbenzene	3.75	3.94	3.96	105	106	70.0-130			0.569	25
(S) 1,4-Bromofluorobenzene				*93.9*	*92.3*	*60.0-140*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

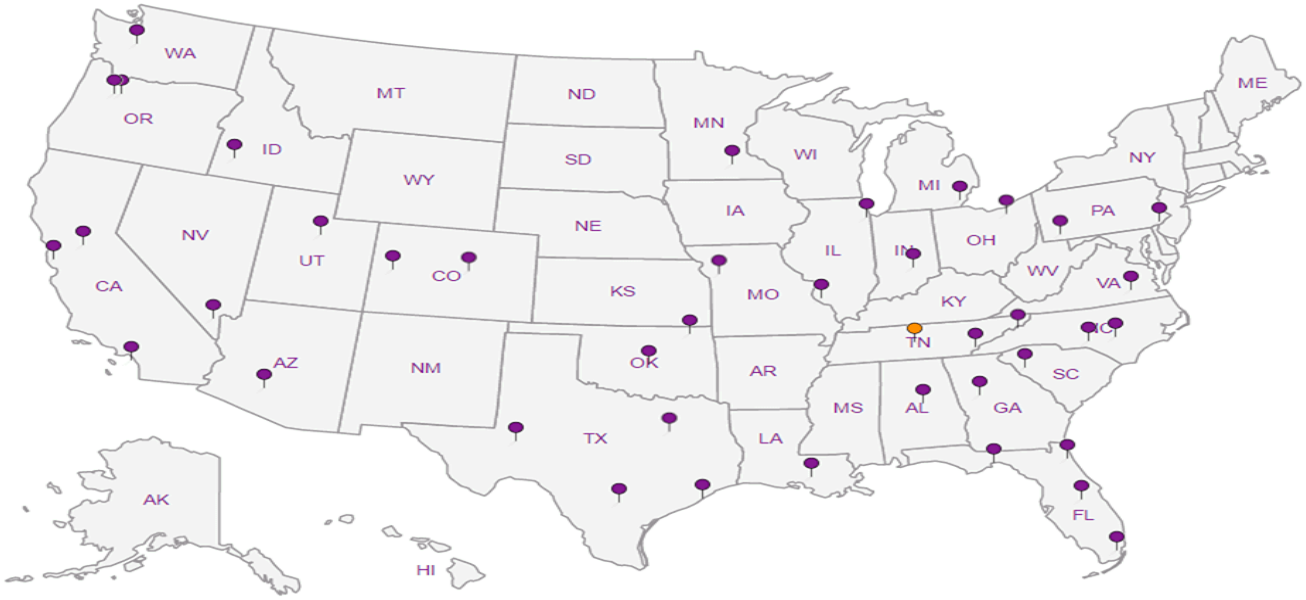
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1044666

M097

Company Name/Address:
S&ME Inc.
4241 Hyshwy 58
Chattanooga, TN 37416

Billing Information:
S&ME Inc.
4241 Highway 58
Chattanooga, TN 37416

Report to:
Jheywood & Paul Hubbard

Email To:
Jheywood@smeinc.com phubbard@smeinc.com

Project Description: Former Harriet Tubman Homes

City/State Collected: Chattanooga, TN

Phone: 423-499-0457
Fax:

Client Project # 4181-18-046 PH 431

Lab Project #

Collected by (print): Paul Hubbard

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Standard 5-day turn

Email? ___No X Yes
FAX? ___No ___Yes

Canister Pressure/Vacuum

Acctnum: SMEHTN
Template:
Prelogin:
TSR:
PB:

Shipped Via:

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	Analysis: TO-15	Rem./Contaminant	Sample # (lab only)
B-4	Soil Gas	9225	11-14-18	10:48	22	2	X		-01

Remarks: Regulator 8688 needs to be cleaned

7283 8375 0168

Hold #

Condition: (lab use only)

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11-14-18	1:30pm	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____

Temp: Amb °C Bottles Received: 1

Date: 11/15/18 Time: 1000

COC Seal Intact: ___Y ___N ___NA

pH Checked: NCF:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: SMEHTN	SDG#	104466
Cooler Received/Opened On: 11/15/18	Temperature:	Amb
Received By: Eric Struck		
Signature: Eric D		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 20, 2018

S&ME Inc. - Hixson TN.

Sample Delivery Group:	L1044688
Samples Received:	11/15/2018
Project Number:	4181-18-046 PH 431
Description:	Former Harriet Tubman Homes

Report To: Johanna Heywood / Paul Hubbard
4291 HWY 58 Suite 101
Chattanooga, TN 37416

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

B-2 L1044688-01 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/14/18 10:50	11/15/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1197552	1	11/16/18 09:14	11/18/18 16:32	TCT
Metals (ICP) by Method 6010B	WG1197583	1	11/16/18 14:19	11/19/18 14:19	ST

B-4 L1044688-02 GW

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/14/18 10:02	11/15/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1197552	1	11/16/18 09:14	11/18/18 16:34	TCT
Metals (ICP) by Method 6010B	WG1197583	1	11/16/18 14:19	11/19/18 14:22	ST

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	11/18/2018 16:32	WG1197552

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic	ND		0.0100	1	11/19/2018 14:19	WG1197583
Barium	0.0560		0.00500	1	11/19/2018 14:19	WG1197583
Cadmium	ND		0.00200	1	11/19/2018 14:19	WG1197583
Chromium	ND		0.0100	1	11/19/2018 14:19	WG1197583
Lead	0.00657		0.00500	1	11/19/2018 14:19	WG1197583
Selenium	ND		0.0100	1	11/19/2018 14:19	WG1197583
Silver	ND		0.00500	1	11/19/2018 14:19	WG1197583

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Mercury	ND		0.000200	1	11/18/2018 16:34	WG1197552

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Arsenic	ND		0.0100	1	11/19/2018 14:22	WG1197583
Barium	0.0496		0.00500	1	11/19/2018 14:22	WG1197583
Cadmium	ND		0.00200	1	11/19/2018 14:22	WG1197583
Chromium	ND		0.0100	1	11/19/2018 14:22	WG1197583
Lead	ND		0.00500	1	11/19/2018 14:22	WG1197583
Selenium	ND		0.0100	1	11/19/2018 14:22	WG1197583
Silver	ND		0.00500	1	11/19/2018 14:22	WG1197583

Method Blank (MB)

(MB) R3361031-1 11/18/18 15:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.0000490	0.000200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361031-2 11/18/18 16:00 • (LCSD) R3361031-3 11/18/18 16:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	0.00273	0.00268	90.8	89.4	80.0-120			1.64	20

L1044469-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1044469-01 11/18/18 16:05 • (MS) R3361031-4 11/18/18 16:08 • (MSD) R3361031-5 11/18/18 16:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00300	ND	0.00277	0.00283	89.6	91.7	1	75.0-125			2.32	20

Method Blank (MB)

(MB) R3361383-1 11/19/18 14:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U		0.00650	0.0100
Barium	U		0.00170	0.00500
Cadmium	U		0.000700	0.00200
Chromium	U		0.00140	0.0100
Lead	U		0.00190	0.00500
Selenium	U		0.00740	0.0100
Silver	U		0.00280	0.00500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3361383-2 11/19/18 14:03 • (LCSD) R3361383-3 11/19/18 14:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	0.991	0.973	99.1	97.3	80.0-120			1.84	20
Barium	1.00	1.03	1.02	103	102	80.0-120			1.22	20
Cadmium	1.00	0.973	0.959	97.3	95.9	80.0-120			1.45	20
Chromium	1.00	0.999	0.998	99.9	99.8	80.0-120			0.0716	20
Lead	1.00	0.979	0.965	97.9	96.5	80.0-120			1.37	20
Selenium	1.00	0.981	0.972	98.1	97.2	80.0-120			0.948	20
Silver	0.200	0.180	0.181	89.8	90.3	80.0-120			0.521	20

L1044748-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1044748-01 11/19/18 14:08 • (MS) R3361383-5 11/19/18 14:14 • (MSD) R3361383-6 11/19/18 14:16

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	ND	0.985	1.00	98.5	100	1	75.0-125			1.63	20
Barium	1.00	0.00561	1.04	1.05	103	105	1	75.0-125			1.86	20
Cadmium	1.00	ND	0.971	0.989	97.1	98.9	1	75.0-125			1.81	20
Chromium	1.00	ND	1.01	1.02	101	102	1	75.0-125			1.75	20
Lead	1.00	ND	0.972	0.992	97.2	99.2	1	75.0-125			2.04	20
Selenium	1.00	ND	0.985	1.00	98.5	100	1	75.0-125			1.71	20
Silver	0.200	ND	0.180	0.184	90.1	92.1	1	75.0-125			2.13	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

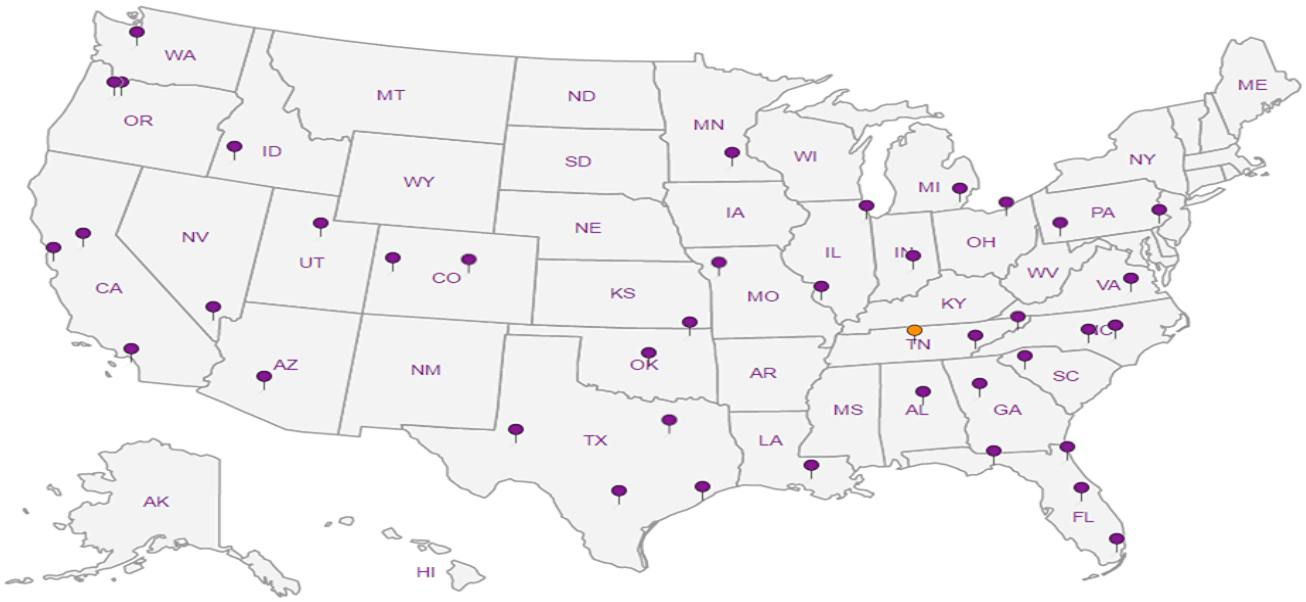
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



S&ME Inc. - Hixson TN.

4291 HWY 58 Suite 101
Chattanooga, TN 37416

Billing Information:
Accounts Payable
4291 HWY 58 Ste.101
Chattanooga, TN 37416

Report to: Johanna Haywood & Paul Hubbard
Email To: PHubbard@smeinc.com JHaywood@smeinc.com

Project Description: Former Harriet Tubman Homes
City/State Collected: Chattanooga, TN

Phone: 423-499-0957
Fax:

Client Project # 4181-18-046 PH 431
Lab Project #

Collected by (print): Paul Hubbard
Site/Facility ID #
P.O. #

Collected by (signature):
Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day X Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed: Std 5-day

Quote #

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	RCRA 8 250mL HDPE - HNO3										Remarks	Sample # (lab only)
B-2	grab	GW	NA	11-14-18	10:50	1	X											-01
B-4	grab	GW	NA	11-14-18	10:02	1	X											-02

Chain of Custody Page 1 of 1

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1044688
C013

Acctnum: SMEHTN
Template:
Prelogin:
TSR: 690 - Tom Mellette
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: [redacted] pH _____ Temp _____ Flow _____ Other _____

Samples returned via: __UPS __FedEx __Courier _____

Tracking # 4510 1651 9757

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y __N
COC Signed/Accurate: Y __N
Bottles arrive intact: Y __N
Correct bottles used: Y __N
Sufficient volume sent: Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: Y __N
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	11-14-18	1:30pm			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.2 °C 1.1 1.3 Bottles Received: 2BR	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11-15 Time: 0845	Hold: / Condition: NCF / OK

11-15-18

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 23, 2018

S&ME Inc. - Hixson TN.

Sample Delivery Group:	L1045915
Samples Received:	11/20/2018
Project Number:	1281-18-021A
Description:	Former Harriet Tubman Homes

Report To: Johanna Heywood
4291 HWY 58 Suite 101
Chattanooga, TN 37416

Entire Report Reviewed By:

Tom Mellette
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

SG-2 L1045915-01 Air

Collected by	Collected date/time	Received date/time
Paul Hubbard	11/19/18 09:52	11/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG1199929	1	11/21/18 22:37	11/21/18 22:37	AMC

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Tom Mellette
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.25	2.97	10.1	23.9		1	WG1199929
Allyl chloride	107-05-1	76.53	0.200	0.626	ND	ND		1	WG1199929
Benzene	71-43-2	78.10	0.200	0.639	ND	ND		1	WG1199929
Benzyl Chloride	100-44-7	127	0.200	1.04	ND	ND		1	WG1199929
Bromodichloromethane	75-27-4	164	0.200	1.34	ND	ND		1	WG1199929
Bromoform	75-25-2	253	0.600	6.21	ND	ND		1	WG1199929
Bromomethane	74-83-9	94.90	0.200	0.776	ND	ND		1	WG1199929
1,3-Butadiene	106-99-0	54.10	2.00	4.43	ND	ND		1	WG1199929
Carbon disulfide	75-15-0	76.10	0.200	0.622	0.371	1.15		1	WG1199929
Carbon tetrachloride	56-23-5	154	0.200	1.26	ND	ND		1	WG1199929
Chlorobenzene	108-90-7	113	0.200	0.924	ND	ND		1	WG1199929
Chloroethane	75-00-3	64.50	0.200	0.528	ND	ND		1	WG1199929
Chloroform	67-66-3	119	0.200	0.973	ND	ND		1	WG1199929
Chloromethane	74-87-3	50.50	0.200	0.413	ND	ND		1	WG1199929
2-Chlorotoluene	95-49-8	126	0.200	1.03	ND	ND		1	WG1199929
Cyclohexane	110-82-7	84.20	0.200	0.689	ND	ND		1	WG1199929
Dibromochloromethane	124-48-1	208	0.200	1.70	ND	ND		1	WG1199929
1,2-Dibromoethane	106-93-4	188	0.200	1.54	ND	ND		1	WG1199929
1,2-Dichlorobenzene	95-50-1	147	0.200	1.20	ND	ND		1	WG1199929
1,3-Dichlorobenzene	541-73-1	147	0.200	1.20	ND	ND		1	WG1199929
1,4-Dichlorobenzene	106-46-7	147	0.200	1.20	ND	ND		1	WG1199929
1,2-Dichloroethane	107-06-2	99	0.200	0.810	ND	ND		1	WG1199929
1,1-Dichloroethane	75-34-3	98	0.200	0.802	ND	ND		1	WG1199929
1,1-Dichloroethene	75-35-4	96.90	0.200	0.793	ND	ND		1	WG1199929
cis-1,2-Dichloroethene	156-59-2	96.90	0.200	0.793	ND	ND		1	WG1199929
trans-1,2-Dichloroethene	156-60-5	96.90	0.200	0.793	ND	ND		1	WG1199929
1,2-Dichloropropane	78-87-5	113	0.200	0.924	ND	ND		1	WG1199929
cis-1,3-Dichloropropene	10061-01-5	111	0.200	0.908	ND	ND		1	WG1199929
trans-1,3-Dichloropropene	10061-02-6	111	0.200	0.908	ND	ND		1	WG1199929
1,4-Dioxane	123-91-1	88.10	0.200	0.721	ND	ND		1	WG1199929
Ethanol	64-17-5	46.10	0.630	1.19	ND	ND		1	WG1199929
Ethylbenzene	100-41-4	106	0.200	0.867	ND	ND		1	WG1199929
4-Ethyltoluene	622-96-8	120	0.200	0.982	ND	ND		1	WG1199929
Trichlorofluoromethane	75-69-4	137.40	0.200	1.12	0.200	1.12		1	WG1199929
Dichlorodifluoromethane	75-71-8	120.92	0.200	0.989	0.315	1.56		1	WG1199929
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.200	1.53	ND	ND		1	WG1199929
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.200	1.40	ND	ND		1	WG1199929
Heptane	142-82-5	100	0.200	0.818	ND	ND		1	WG1199929
Hexachloro-1,3-butadiene	87-68-3	261	0.630	6.73	ND	ND		1	WG1199929
n-Hexane	110-54-3	86.20	0.200	0.705	0.352	1.24		1	WG1199929
Isopropylbenzene	98-82-8	120.20	0.200	0.983	ND	ND		1	WG1199929
Methylene Chloride	75-09-2	84.90	0.200	0.694	ND	ND		1	WG1199929
Methyl Butyl Ketone	591-78-6	100	1.25	5.11	ND	ND		1	WG1199929
2-Butanone (MEK)	78-93-3	72.10	1.25	3.69	ND	ND		1	WG1199929
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	1.25	5.12	ND	ND		1	WG1199929
Methyl methacrylate	80-62-6	100.12	0.200	0.819	ND	ND		1	WG1199929
MTBE	1634-04-4	88.10	0.200	0.721	ND	ND		1	WG1199929
Naphthalene	91-20-3	128	0.630	3.30	ND	ND		1	WG1199929
2-Propanol	67-63-0	60.10	1.25	3.07	1.98	4.87		1	WG1199929
Propene	115-07-1	42.10	0.400	0.689	ND	ND		1	WG1199929
Styrene	100-42-5	104	0.200	0.851	ND	ND		1	WG1199929
1,1,2,2-Tetrachloroethane	79-34-5	168	0.200	1.37	ND	ND		1	WG1199929
Tetrachloroethylene	127-18-4	166	0.200	1.36	ND	ND		1	WG1199929
Tetrahydrofuran	109-99-9	72.10	0.200	0.590	ND	ND		1	WG1199929
Toluene	108-88-3	92.10	0.200	0.753	0.515	1.94		1	WG1199929
1,2,4-Trichlorobenzene	120-82-1	181	0.630	4.66	ND	ND		1	WG1199929

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.200	1.09	ND	ND		1	WG1199929
1,1,2-Trichloroethane	79-00-5	133	0.200	1.09	ND	ND		1	WG1199929
Trichloroethylene	79-01-6	131	0.200	1.07	ND	ND		1	WG1199929
1,2,4-Trimethylbenzene	95-63-6	120	0.200	0.982	ND	ND		1	WG1199929
1,3,5-Trimethylbenzene	108-67-8	120	0.200	0.982	ND	ND		1	WG1199929
2,2,4-Trimethylpentane	540-84-1	114.22	0.200	0.934	ND	ND		1	WG1199929
Vinyl chloride	75-01-4	62.50	0.200	0.511	ND	ND		1	WG1199929
Vinyl Bromide	593-60-2	106.95	0.200	0.875	ND	ND		1	WG1199929
Vinyl acetate	108-05-4	86.10	0.200	0.704	ND	ND		1	WG1199929
m&p-Xylene	1330-20-7	106	0.400	1.73	ND	ND		1	WG1199929
o-Xylene	95-47-6	106	0.200	0.867	ND	ND		1	WG1199929
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*96.8*				WG1199929

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3362305-3 11/21/18 10:25

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	0.0945	J	0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	0.0616	J	0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	0.0762	J	0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	0.0644	J	0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	0.115	J	0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3362305-3 11/21/18 10:25

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	U		0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	0.175	J	0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	0.168	J	0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
(S) 1,4-Bromofluorobenzene	*91.1*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3362305-1 11/21/18 08:43 • (LCSD) R3362305-2 11/21/18 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.23	3.04	86.1	81.1	55.0-148			5.94	25
Propene	3.75	3.52	3.53	94.0	94.2	64.0-144			0.256	25
Dichlorodifluoromethane	3.75	3.12	3.12	83.2	83.2	64.0-139			0.0196	25
1,2-Dichlorotetrafluoroethane	3.75	3.69	3.69	98.4	98.5	70.0-130			0.0916	25
Chloromethane	3.75	3.49	3.53	92.9	94.0	70.0-130			1.15	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3362305-1 11/21/18 08:43 • (LCSD) R3362305-2 11/21/18 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Vinyl chloride	3.75	3.56	3.55	94.9	94.5	70.0-130			0.362	25
1,3-Butadiene	3.75	3.64	3.54	97.1	94.5	70.0-130			2.79	25
Bromomethane	3.75	3.64	3.67	97.2	97.9	70.0-130			0.712	25
Chloroethane	3.75	3.70	3.68	98.8	98.1	70.0-130			0.754	25
Trichlorofluoromethane	3.75	3.64	3.65	97.1	97.3	70.0-130			0.221	25
1,1,2-Trichlorotrifluoroethane	3.75	3.67	3.69	98.0	98.5	70.0-130			0.544	25
1,1-Dichloroethene	3.75	3.54	3.54	94.4	94.4	70.0-130			0.0122	25
1,1-Dichloroethane	3.75	3.63	3.64	96.7	96.9	70.0-130			0.274	25
Acetone	3.75	3.70	3.70	98.7	98.7	70.0-130			0.00470	25
2-Propanol	3.75	3.79	3.74	101	99.8	70.0-139			1.36	25
Carbon disulfide	3.75	3.70	3.68	98.7	98.3	70.0-130			0.408	25
Methylene Chloride	3.75	3.38	3.39	90.1	90.5	70.0-130			0.480	25
MTBE	3.75	3.63	3.59	96.7	95.8	70.0-130			0.994	25
trans-1,2-Dichloroethene	3.75	3.63	3.64	96.8	97.1	70.0-130			0.349	25
n-Hexane	3.75	3.65	3.58	97.4	95.6	70.0-130			1.92	25
Vinyl acetate	3.75	3.98	3.94	106	105	70.0-130			0.892	25
Methyl Ethyl Ketone	3.75	3.80	3.64	101	97.1	70.0-130			4.36	25
cis-1,2-Dichloroethene	3.75	4.02	3.97	107	106	70.0-130			1.20	25
Chloroform	3.75	3.61	3.64	96.4	97.1	70.0-130			0.793	25
Cyclohexane	3.75	3.66	3.66	97.6	97.6	70.0-130			0.0484	25
1,1,1-Trichloroethane	3.75	3.59	3.60	95.8	95.9	70.0-130			0.131	25
Carbon tetrachloride	3.75	3.67	3.62	97.8	96.5	70.0-130			1.30	25
Benzene	3.75	3.64	3.63	97.0	96.8	70.0-130			0.220	25
1,2-Dichloroethane	3.75	3.62	3.57	96.4	95.2	70.0-130			1.29	25
Heptane	3.75	3.60	3.60	96.1	95.9	70.0-130			0.153	25
Trichloroethylene	3.75	3.64	3.63	97.2	96.8	70.0-130			0.402	25
1,2-Dichloropropane	3.75	3.64	3.60	97.2	95.9	70.0-130			1.35	25
1,4-Dioxane	3.75	4.22	4.15	112	111	70.0-140			1.61	25
Bromodichloromethane	3.75	3.67	3.63	97.9	96.8	70.0-130			1.13	25
cis-1,3-Dichloropropene	3.75	3.81	3.74	101	99.8	70.0-130			1.63	25
4-Methyl-2-pentanone (MIBK)	3.75	3.87	3.83	103	102	70.0-139			1.09	25
Toluene	3.75	3.74	3.70	99.7	98.7	70.0-130			0.978	25
trans-1,3-Dichloropropene	3.75	3.83	3.78	102	101	70.0-130			1.35	25
1,1,2-Trichloroethane	3.75	3.70	3.64	98.7	97.2	70.0-130			1.56	25
Tetrachloroethylene	3.75	3.76	3.76	100	100	70.0-130			0.143	25
Methyl Butyl Ketone	3.75	4.11	4.13	110	110	70.0-149			0.463	25
Dibromochloromethane	3.75	3.67	3.62	97.9	96.5	70.0-130			1.39	25
1,2-Dibromoethane	3.75	3.65	3.64	97.3	97.0	70.0-130			0.301	25
Chlorobenzene	3.75	3.44	3.39	91.6	90.4	70.0-130			1.35	25
Ethylbenzene	3.75	3.84	3.82	102	102	70.0-130			0.528	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3362305-1 11/21/18 08:43 • (LCSD) R3362305-2 11/21/18 09:34

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
m&p-Xylene	7.50	7.62	7.59	102	101	70.0-130			0.375	25
o-Xylene	3.75	3.74	3.71	99.8	98.9	70.0-130			0.866	25
Styrene	3.75	3.85	3.81	103	102	70.0-130			1.05	25
Bromoform	3.75	3.65	3.64	97.3	97.2	70.0-130			0.155	25
1,1,2,2-Tetrachloroethane	3.75	3.72	3.69	99.2	98.4	70.0-130			0.821	25
4-Ethyltoluene	3.75	3.62	3.61	96.6	96.3	70.0-130			0.258	25
1,3,5-Trimethylbenzene	3.75	3.64	3.63	97.1	96.8	70.0-130			0.321	25
1,2,4-Trimethylbenzene	3.75	3.58	3.56	95.4	95.0	70.0-130			0.396	25
1,3-Dichlorobenzene	3.75	3.64	3.61	97.1	96.1	70.0-130			1.02	25
1,4-Dichlorobenzene	3.75	3.68	3.63	98.2	96.8	70.0-130			1.48	25
Benzyl Chloride	3.75	4.09	4.03	109	107	70.0-152			1.50	25
1,2-Dichlorobenzene	3.75	3.42	3.43	91.1	91.5	70.0-130			0.431	25
1,2,4-Trichlorobenzene	3.75	4.69	4.64	125	124	70.0-160			1.12	25
Hexachloro-1,3-butadiene	3.75	3.75	3.78	99.9	101	70.0-151			0.998	25
Naphthalene	3.75	4.91	4.92	131	131	70.0-159			0.148	25
Allyl Chloride	3.75	3.75	3.60	100	96.1	70.0-130			4.08	25
2-Chlorotoluene	3.75	3.56	3.58	94.8	95.6	70.0-130			0.808	25
Methyl Methacrylate	3.75	3.76	3.85	100	103	70.0-130			2.36	25
Tetrahydrofuran	3.75	3.62	3.58	96.7	95.5	70.0-137			1.25	25
2,2,4-Trimethylpentane	3.75	3.57	3.54	95.2	94.5	70.0-130			0.744	25
Vinyl Bromide	3.75	3.86	3.83	103	102	70.0-130			0.800	25
Isopropylbenzene	3.75	3.63	3.60	96.8	96.1	70.0-130			0.724	25
(S) 1,4-Bromofluorobenzene				*98.9*	*97.8*	*60.0-140*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

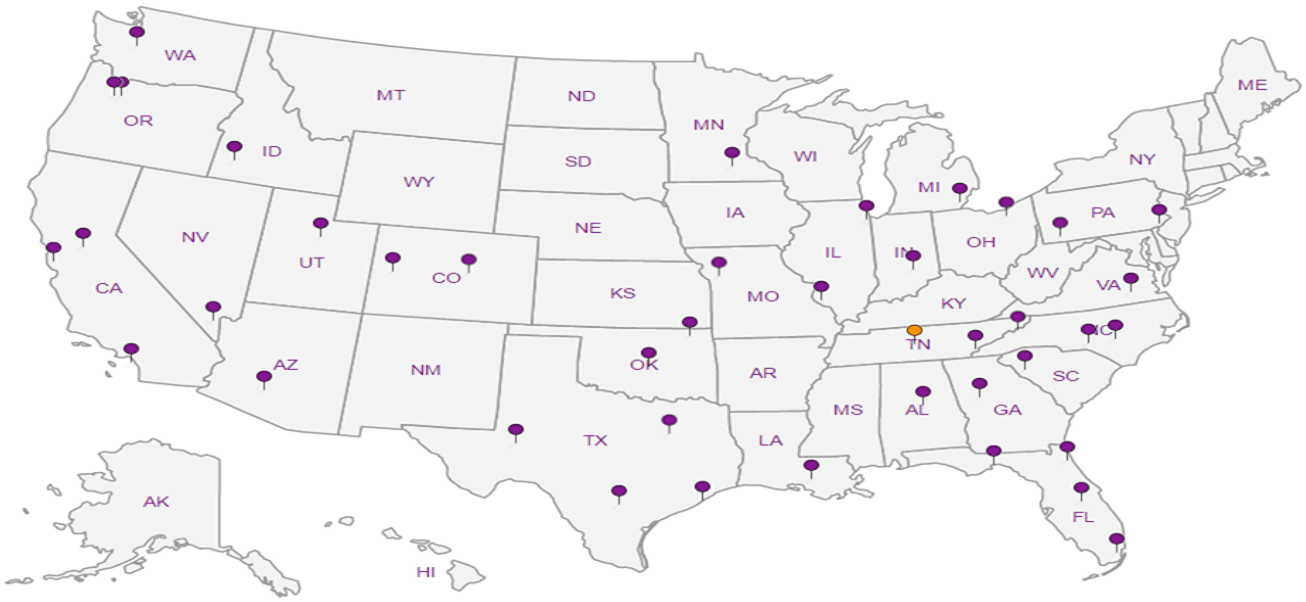
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Company Name/Address:
S&ME Inc.
4291 Highway 58
Chattanooga, TN 37416

Billing Information:
S&ME Inc.
4291 Highway 58
Chattanooga, TN 37416

Report to: Johnna Heywood & Paul Hubbard

Email To: JHeywood@smeinc.com phubbard@smeinc.com

Project Description: Former Harriet Tubman Homes

City/State Collected: Chattanooga, TN

Phone: 423-499-0857

Client Project # 4181-18-046 PA 432

Lab Project #

Fax:

Collected by (print): Paul Hubbard

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Standard 5-day

Email? ___No X Yes
FAX? ___No ___Yes

Canister Pressure/Vacuum

Analysis: TO-15

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1045915

Tat M145

Acctnum: SMEHTN
Template: T142412
Prelogin: P678603
TSR: Tom Mellette
PB: BF 10/30/18

Shipped Via:

Sample ID	Sample Description	Can #	Date	Time	Initial	Final	TO-15	Rem./Contaminant	Sample # (lab only)
SG-2	soil gas	5753	11-19-18	9:52am	28	3	X		-01

Remarks: 462930034630

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	11-19-18	4:15 pm	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ____

Temp: Amb °C Bottles Received: 1

Date: 11/20/18 Time: 0845

Hold #

Condition: (lab use only)

COC Seal Intact: ___Y ___N /NA

pH Checked: NCF: ok

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: SMEHTN	SDG#	1045915
Cooler Received/Opened On: 11/ 20 /18	Temperature:	Amb
Received By: Eric Struck		
Signature: ED		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			